

THE JOURNAL OF MEDICAL EDUCATION

OFFICIAL PUBLICATION OF
THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES



August 1955 • VOLUME 30 • NUMBER 8

**66th Annual Meeting—October 24-26
Swampscott, Mass.**

The Development of American Anatomy Acts.....John B. Blake

An Increase in the Price of Medical Freedom.....William P. Shepard

Case Method in the Laboratory Study of Pathology....J. F. A. McManus

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The Journal of MEDICAL EDUCATION



Official publication of the Association of American Medical Colleges, 185 N. Wabash Ave., Chicago 1.

The Journal of MEDICAL EDUCATION is owned and published monthly by the Association of American Medical Colleges, 185 N. Wabash Ave., Chicago 1; Phone, State 2-8870. Entered as second class matter January 17, 1930, at the Post Office, Chicago, Ill., under the Act of March 3, 1879.

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SUBSCRIPTION RATES: \$7 per year, \$1 per single copy; foreign \$8 per year; \$1.25 per single copy. Change of Address: Notifications of changes of address should include the old address wrapper and the new address.

COPY DEADLINE: Copy for typesetting must be in by the 1st and plates by the 10th of the month preceding publication.

ADVERTISING: Advertising Manager, Roy G. Parry, Journal of Medical Education, 185 N. Wabash Ave., Chicago 1, Ill.; State 2-8870.

REPRINTS: Each author routinely receives 25 copies of his article promptly after publication. Additional reprints may be purchased from the Journal in quantities of 100, and in multiples of hundreds at a price depending on the length of the article.

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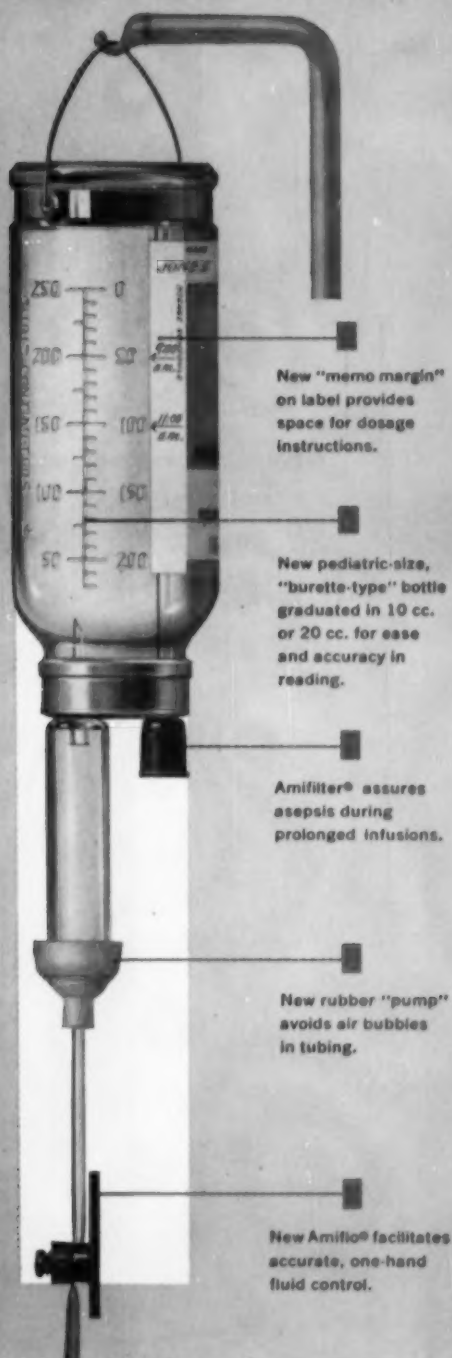
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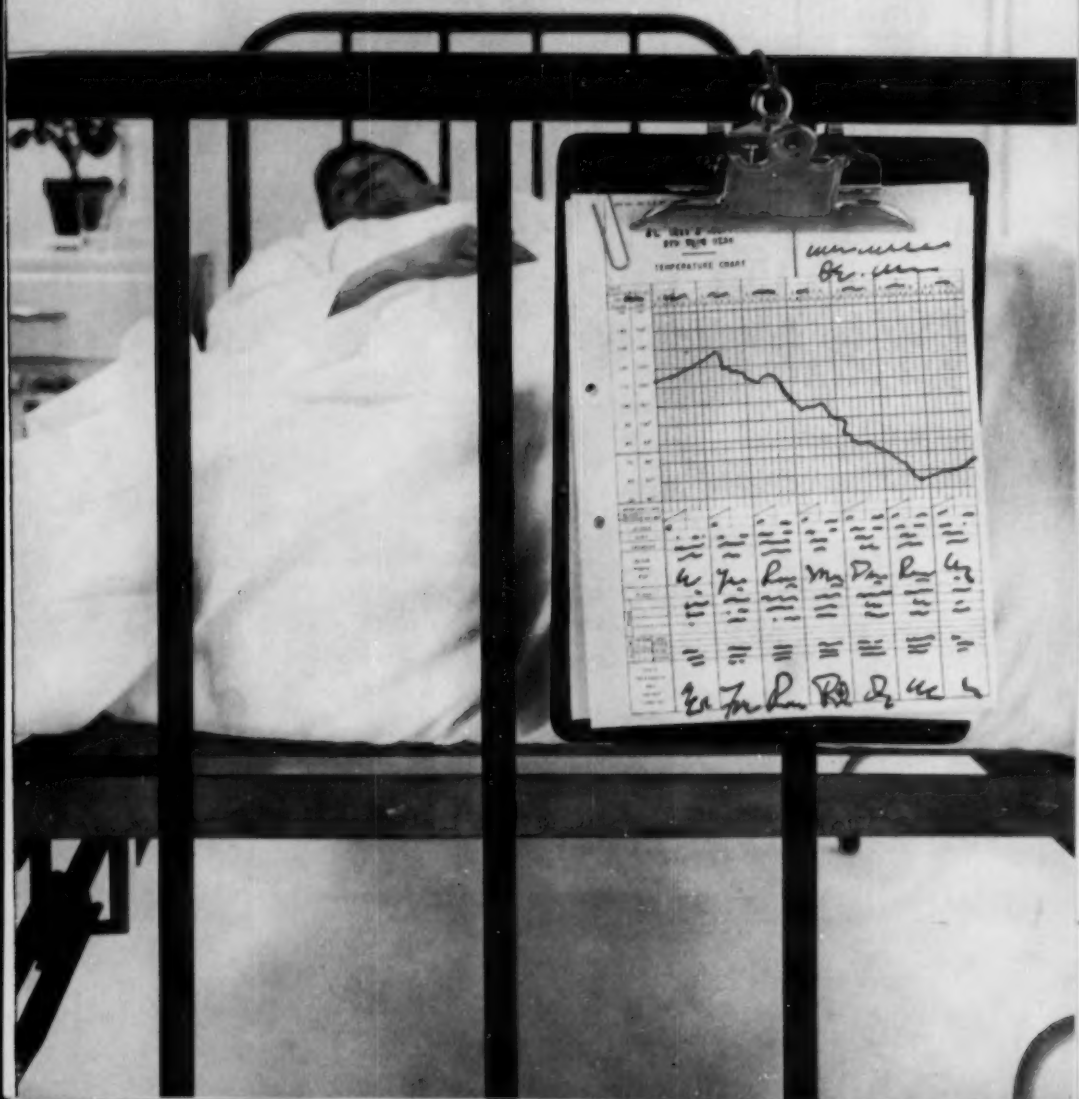
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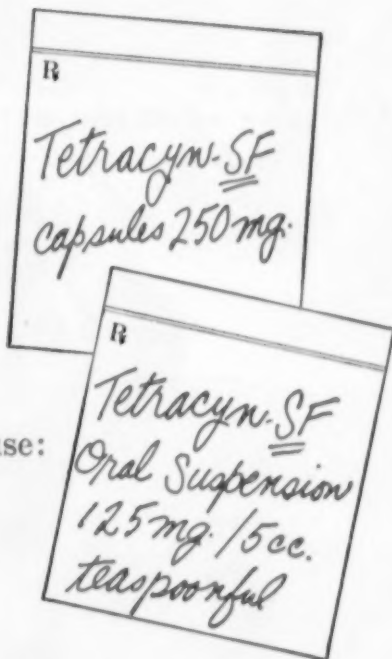
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- Teaching Institute on Anatomy and Anthropology—October 19-22; Swampscott, Mass. (New Ocean House). (Attendance by invitation only).**
- American Hospital Association, Annual Convention—September 19-22; Traymore Hotel, Atlantic City.**
- Eighth International Conference of Social Work—August 5-10, 1956; Munich, Germany.**
- International Academy of Legal and Social Medicine—October 13-17; Genes, Italy.**
- International Congress of Angiology and Histopathology—September 2-5; Fribourg, Switzerland.**
- International Congress of Biochemistry—August 1-6; Brussels, Belgium.**
- International Congress of Military Medicine and Pharmacy—August 28-September 1; Istanbul, Turkey.**
- International Congress of Plastic Surgery—August 1-4; Stockholm, Sweden.**
- International Medical Congress—September 1-4; Verona, Italy.**
- Pan American Congress of Ophthalmology—January 9-14, 1956; Santiago, Chile.**
- Pan American Congress on Rheumatic Disease—August 14-20; Rio de Janeiro and Sao Paulo, Brazil.**
- Pan American Medical Social Convention—October 15-22; Bogota, Colombia.**
- World Congress of Anesthesiologists—September 5-10; Scheveningen, Netherlands.**
- World Medical Association—September 20-26; Vienna, Austria.**

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1. Palmer, H., and Gallagher, D. J. A.: Brit. M. J. 2:558 (Sept. 2) 1950. 2. Ziegler, D. K., and Torres, F.: Neurology 5:197 (March) 1955. 3. Timberlake, W. H., and Schwab, R. S.: New England J. Med. 247:98 (July 17) 1952.

WARNER-CHILCOTT

The Development of American Anatomy Acts

Ruth Sprague, aged nine, died 1846. She was stolen from the grave by Roderick R. Clow and dissected at Dr. P. M. Armstrong's office at Hoosick, New York, from which place her mutilated remains were obtained and deposited here.

Her body stolen by fiendish men,
Her bones anatomized,
Her soul, we trust, has risen to God,
Where few physicians rise.

From a tombstone in Hoosick, N. Y.¹

JOHN B. BLAKE

BRINGING VIVIDLY to our minds the memory of a practice prevalent in America but a few decades ago, this epitaph marks the result of an inadequate legal source of cadavers. Forced to obtain their subjects from the graveyard, students of anatomy were hampered not only by lack of material, but also by the public hostility which grave robbing inevitably aroused. At this time, when the supply of anatomical subjects is again becoming a serious problem,² it may be worthwhile to review the difficulties which beset the anatomy teacher some years ago.

Although some Greek physicians, particularly of the Alexandrian school, from about the third century B.C. to the first century A.D. dissected human

cadavers, by the time of Galen (ca. 130-200) the practice was no longer allowed.³ From the fall of the Roman Empire throughout most of the medieval period, the dead human body remained inviolate. In the latter part of the 13th century, however, occasional autopsies signaled the beginning of a new viewpoint, and by 1315 Mundinus of Bologna had reintroduced public dissection of the human cadaver for teaching purposes. During succeeding centuries this procedure became firmly established in the medical curricula of European universities. By the 16th century anatomists were often investigating as well as demonstrating, and in 1543 appeared Vesalius's great work.⁴ Anatomical subjects were still scarce—one of the historiated initials of the *Fabrica* depicts a "resurrection" scene—but in the opinion of Charles Singer this problem did not there-

Dr. Blake is assistant historian at the Rockefeller Institute for Medical Research. At the time of writing this article, he was a Commonwealth Fund Fellow and a student instructor in the department of the history of medicine, Yale University, School of Medicine.

after seriously affect the progress of anatomical science in Italy.⁵

By the time the English were colonizing North America, the study of anatomy by witnessing, if not performing, dissection was a recognized essential of medical education.⁶ Having founded Harvard in 1636 to provide a basis for training in medicine as well as law and divinity, the Massachusetts General Court in 1641 also recognized the established principle of English common law that a judge might sentence the body of a convicted murderer to dissection.⁷

Though there were occasional autopsies in the 17th century, only one example of systematic dissection for teaching purposes is known. Relying almost exclusively on the preceptor system, medical education no doubt degenerated in the early decades of the colony's history.⁹

During the first half of the 18th century, however, as the increasing wealth of the provinces began to concentrate in the urban communities of Boston, New York, Philadelphia and Charleston, more and more medical students traveled to Great Britain and the Continent to complete their training.¹⁰ These men not only enlarged their own knowledge, but also, by raising the level of preceptorship, enhanced the quality of education here. In addition anatomical study in particular benefited from the increasing number of autopsies performed throughout this period.¹¹

Philadelphia as Center

Farseeing leaders realized, however, that more was necessary. Though a professorship of physic and anatomy at Harvard was proposed as early as 1714,¹² Philadelphia had become by the middle of the century the colonies' leading medical center. In 1751 Dr. Thomas Bond and Ben-

jamin Franklin pooled their talents to found the Pennsylvania hospital, and 11 years later William Shippen Jr., newly returned from Edinburgh, began offering a course of lectures and demonstrations in anatomy. Then in 1765 John Morgan, also a graduate of Edinburgh, persuaded the trustees of the College of Philadelphia to organize the first medical school in British America.¹³ In New York City, meanwhile, Dr. Samuel Clossy had started giving a course of lectures in anatomy in 1763, and in 1767 a medical school was set up in connection with King's College.¹⁴ In New England, William Hunter of Newport, R. I., presented lectures in anatomy and surgery in 1755, and 10 years later Dr. William Lee Perkins of Boston advertised a similar course.¹⁵ It was not until 1783, however, that the Harvard authorities, impressed by Dr. John Warren's anatomy courses at the Army hospital in Boston, established the medical school in Cambridge.¹⁶

Only one additional medical college, Dartmouth, was firmly established before the turn of the century, but thereafter they sprouted rapidly. By 1830 a total of nine had been founded in New England alone, and in Transappalachia the schools followed closely behind the westward movement of the frontier.¹⁷ Throughout the country, according to one estimate, 85 medical schools were organized prior to the Civil War.¹⁸

While planning the first American medical school, Morgan had consciously followed one of the best models available, Edinburgh. In his inaugural address, moreover, he emphasized the importance of adequate premedical education, of a graded course progressing logically from anatomy to the practice of medicine, and of hospital facilities for clinical teaching.¹⁹ Allegedly because of the

inadequacy of the teaching staff and equipment, the plan for a graded curriculum was initially set aside. Unfortunately the temporary expedient soon fastened itself permanently onto the American system of medical education. In the early years of the 19th century requiring students to attend twice the same complete course of lectures became the standard practice.

As the demand for doctors grew, groups of physicians who were often seeking primarily the direct or indirect profits of a professorial post began establishing proprietary medical schools unregulated by the state and unhampered by affiliation with pre-existing colleges or universities. Competition for students between schools, the absence of independent licensing requirements and the atmosphere of Jacksonian democracy led to the disregard of the high standards advocated by Morgan and a sorry decline in the quality of medical training. Requirements for pre-medical education were often practically eliminated, and clinical facilities were generally meager or non-existent. Though the result was no doubt in some cases better than the system, a host of untrained doctors was inevitably let loose upon the public to learn their art⁸ by practicing on their patients.

All of the schools, however, recognized the place of anatomy in medical training. Though the rest of the curriculum was didactic, most schools claimed to offer, if they did not require, a course in practical anatomy. In addition, most schools continued to require students to work for three years with a preceptor, under whom they might pursue anatomical studies. In several cities physicians gave independent lectures on anatomy, while surgeons often felt the need for private dissection to improve their

knowledge or to prepare for an unusual or difficult operation. Despite the inadequacy of the system of medical education, therefore, a large and continuing demand for cadavers existed.

To some extent this demand might have been supplied early in the 19th century from legal sources. Supplementing its earlier recognition of the common law principle, the Massachusetts General Court in 1784 provided that judges might sentence the body of anyone killed in a duel, and must sentence the murderer in such a case, to dissection. In 1805 the law was expanded to threaten other murderers with the possibility of final dismemberment at the anatomist's hands. The legislature's primary purpose was of course to increase the terror of the punishment meted out to certain classes of criminals. While illustrating the public attitude toward dissection, these laws also served to intensify the general abhorrence of this fate by associating it with criminality. Prior to the 1820's only one such statute, passed by New York in 1789 as a direct result of the "Doctor's Mob" riot, specifically included among its purposes facilitating the study of anatomy.²⁰

Unfortunately, these legal sources of anatomical material were insufficient. Massachusetts, for example, executed only 26 persons (including 10 for crimes other than murder) from 1800 to 1830, and the federal court for the Massachusetts district (from 1789 to 1830) only 14.²¹ The inevitable result was widespread grave robbing by medical students, physicians and in time professional "body snatchers" or "resurrectionists."

Although preceptors during the first half of the 19th century probably used more cadavers than medical schools, the public connected grave robbing primarily with the latter.

Popular horror of the practice frequently led to strong preventive or retaliatory measures. Some flagrant cases of grave robbing in New York in 1788, followed by the discovery of dissected human parts at the medical school, caused severe rioting and several deaths. Similar events elsewhere were by no means rare for another 70 years.²² Generally, however, less violent methods were favored. Thus a bereaved family might hire a guard for the fresh grave, protect the coffin with heavy stones or large planks or leave the body in a vault to decompose for several weeks, until it could no longer serve the anatomists' purpose.²³

The public attitude also led to legislation severely punishing grave robbing. New York passed the first such statute (except for witchcraft acts) in 1789, and seven years later, when Dartmouth announced its plan to establish a medical school, New Hampshire followed suit. The Connecticut legislature in the May 1810 session provided a heavy penalty for grave robbing—and then in the October session chartered the medical institution at Yale. Many other states in time enacted similar measures; elsewhere the courts could always find some grounds for punishing body snatchers.²⁴

Overcoming Hostility

Needing anatomical subjects, the medical profession had to devise means of overcoming popular hostility. To allay the public, medical schools commonly emphasized in their catalogs the use of models, charts and similar teaching aids, and their published regulations warned students of instant dismissal for grave robbing. Unable categorically to deny the practice of dissection, medical colleges often tried to con-

vince the public that they obtained their cadavers from a distance. Classic was the pledge of the Vermont Medical College in 1828 to use no bodies "disinterred hereabouts."

Since these methods often failed, schools also found places for hiding bodies quickly when search parties appeared: the cupola which topped so many medical college buildings in the nineteenth century often served a more significant purpose than mere architectural embellishment. In time, moreover, such skilled workers as "Old Cunny" of Cincinnati, who carried on his trade with impunity for years, greatly improved grave robbing techniques. Even so, it would seem that usually local law enforcement agencies must have privately and informally agreed to let the anatomists pursue their studies unmolested if possible, and to warn them of imminent search when public outcry made it inevitable.²⁵

As the medical profession realized, however, these expedients were not a proper substitute for an adequate, legal supply of cadavers. During the 1820's the problem was agitated quite extensively before the public. A movement to legalize the supply of anatomical subjects was advancing contemporaneously in Great Britain, and the American press also reflected the furor created by the disclosure of the awful murders committed by William Burke and William Hare in 1828. In this atmosphere, following a riot in New Haven in 1824, Connecticut authorized the delivery of unclaimed bodies of convicts dying in Newgate to the medical institution at Yale, while requiring the professor of anatomy to post a bond of \$1,000 that no other cadavers would be dissected in the school.²⁶

Later in the decade, however, Massachusetts took the lead in this movement. Through various lay and

professional media the Massachusetts Medical Society and several physicians presented different arguments for a reform. One man noted that if all who died in jail were delivered to an anatomist, there would be fewer criminals. It was also pointed out that an increased supply of cadavers would result in better physicians and therefore fewer persons crippled by accident and disease; there would then be fewer paupers, and in consequence that universal desideratum, lower taxes.

Their main arguments, however, were more to the point. Anatomical knowledge was necessary for the practice of medicine and surgery, the physicians declared, and could be obtained only by dissection. Wax models, plates and similar devices were not good enough. Therefore, anatomical study should be legalized. Under the laws of the state, they pointed out, the physician, who needed a license to practice and was liable to suit for malpractice, had no legal means of acquiring the anatomical knowledge which the law required him to have.

Admittedly, the study of anatomy should be limited by respect for the sensibilities of survivors, who naturally abhorred the desecration of the graves of departed dear ones. Indeed, it was precisely for this reason, to safeguard the feelings of the bereaved, that the laws for the protection of the sepulcher needed to be changed. Increasing the severity of the punishment would only raise the price of cadavers and foster the development of a criminal class.

Unclaimed bodies of those who died in prisons or charitable institutions, the physicians argued, were proper subjects. Their use would not violate the feelings of any living persons. This plan did not discriminate against the poor, as some alleged,

since the respectable poor would always have friends to request their burial. Rather, it would apply chiefly to those brought to low estate by debauchery, vice and crime. In fact, the poor would derive the greatest benefit from this reform; while the rich could always command the services of physicians educated in Europe, the poor must be content with those who received their training at home.²⁷

First Real Act

As a result of this agitation the Massachusetts General Court in 1831 passed America's first real anatomy act. As amended in 1834, it authorized the appropriate local officials to deliver unclaimed bodies which would otherwise have been buried at public expense to physicians and surgeons for teaching purposes, provided the deceased had not in his last illness requested burial. Moreover, the new legislation repealed that feature of an act of 1815 which made possession of a dead body a crime, and specifically authorized physicians and medical students to possess cadavers.²⁸

This law, which preceded England's Warburton Act of 1832, was a great triumph. Elsewhere, Connecticut passed a similar law in 1833, but repealed it in 1834. New Hampshire passed an anatomy act in 1834, but repealed it in 1842. In Michigan an 1844 statute lasted only until 1851. Outside of Massachusetts, New York, where the law dates from 1854, was the only state which retained an anatomy act passed prior to the Civil War.²⁹

Soon after this conflict, and in part, no doubt, because of the ghastly inadequacy of American surgeons which it revealed, a new period of legislation ensued. By 1881 a survey disclosed that of the 38 states 15 had "liberal" anatomy acts, nine had

"illiberal" ones, and 14 had none. In general, the "liberal" ones provided that unclaimed bodies which must otherwise be buried at public expense might be used for purposes of anatomical instruction. They usually included numerous exceptions, however, and permissive wording that subordinated the supply of cadavers to the prejudice of institutional directors. Under the Maryland anatomy act of 1882 the anatomy department of the Johns Hopkins Medical School, from the inauguration of teaching in 1893 to 1898, obtained nearly 60 per cent of its cadavers (excluding those which had been autopsied) from what Franklin P. Mall euphemistically called "outside sources."³⁰

Before then, however, mandatory laws requiring the delivery of cadavers to medical institutions or anatomical boards were beginning to appear. Some civil servants disliked the responsibility, since they could not please everyone. Moreover, once the permissive statutes were on the books, public concern usually diminished as physicians fostered the illusion that because some bodies were acquired legally, all were.

By 1913, of the 39 states with medical schools, Alabama and Louisiana still lacked anatomy acts, and North Carolina and Tennessee made only the bodies of deceased criminals legally available. Yet, though the laws in the remaining states were far from perfect, by and large grave robbing seems to have become a thing of the past.³¹

Frequently a state passed an anatomy act at a particular time because some incident forcefully demonstrated the consequences of failing to provide legal anatomical subjects. The laws in New York in 1789 and in Connecticut in 1824, for example, resulted directly from serious riots.

The Indiana and Ohio laws of 1879 stemmed from the discovery of the body of John Scott Harrison, late United States Congressman and son of President William Henry Harrison, in the Ohio Medical College.

One of the basic determinants of public attitudes toward anatomy laws, it would appear, was the quality of medical education itself. Although the degeneration of medical education during the first half of the 19th century stirred several would-be reformers, notably the founders of the American Medical Association, their practical accomplishments were negligible. After the Civil War, though commercial schools of the worst type continued to proliferate, the better schools carried through several improvements. All schools eventually established the graded curriculum, lengthened their sessions and increased the number of sessions required for the degree. The better schools also came to insist on higher preliminary educational requirements and introduced laboratory teaching in other subjects besides gross anatomy. A notable step in the reform movement occurred in 1871 when Harvard's president, Charles Eliot, seized control of the medical school and instituted the first required graded curriculum of three sessions. Beginning in 1893, the new Johns Hopkins Medical School set a standard for the rest of the nation.³²

By the 1890's, therefore, a few places were beginning to have pre-clinical professors willing to go on the full-time basis despite the financial loss involved. Obviously not teaching for monetary gain, these men commanded respect for themselves and for their schools. Though the general level of medical education was still fantastically low in 1900, there were a few undeniably good schools.

By the turn of the century medicine itself was rapidly rising in the public estimation. Perhaps the most characteristic feature of mid-19th century medical science was its emphasis on pathology and the differentiation and identification of diseases on the basis of correlated clinical and postmortem findings. By careful clinical work and simple numerical analysis, leaders in medicine were overthrowing much of the old therapeutics upon which the physician of 1800 had relied. The poorly educated practitioner, on the other hand, less affected by European science and therapeutic nihilism, continued to rely on the bleeding and purging confidently prescribed by Benjamin Rush. It is no wonder that many people turned to hygiene cults which promised to keep them out of the hands of the physician, or to quacks or sectarians who guaranteed to cure without the use of calomel.

By the end of the century, however, the scientific studies of the previous decades were beginning to have the practical results which the public sought. From the discoveries of bacteriology flowed new therapeutic methods, while the development of pathological anatomy, fortified by the introduction of anesthesia and antiseptics, brought surgery to undreamed-of usefulness in the cure of disease as well as the repair of injury. Even more striking were the triumphs of preventive medicine and sanitary engineering, which were at last finding effective methods of combating some of mankind's most inveterate enemies. In these circumstances the public attitude toward the medical profession, which had fallen so low in the middle of the 19th century, changed markedly. It was at this time that active philanthropy began financing medicine and public health so munificently. Johns Hopkins was an early

case; the classic example is Rockefeller. When the public found medicine worthy of support, medicine found support forthcoming, including the supply of anatomical subjects.²³

For the larger part of the United States, anatomical material and instruction was distinctly inadequate until this century. This was due in large measure to the public antipathy toward dissection, but also, and more fundamentally, to the commercialism of the medical schools and the low esteem in which the public generally held the medical profession. This story also suggests that when in a democracy medicine finds itself flouting public opinion and neglecting its own best ideals, it is flirting with disaster.

REFERENCES

1. WAITE, F. C.: "Grave Robbing in New England," *Bull. M. Libr. Assn.*, 1945, 33, 290.
2. WOODBURN, R. T. and GARDNER, ERNEST: "Report of the Round Table Discussion on Procurement of Anatomical Material," *Anat. Rec.*, 1954, 120, 158-165.
3. EDELSTEIN, LUDWIG: "The Development of Greek Anatomy," *Bull. Inst. Hist. M.*, 1935, 3, 235-248; GALEN, "On Anatomical Procedure," in BROCK, A. J., ed.: "Greek Medicine," London, 1929, 160-165.
4. CORNER, GEORGE W.: "Anatomy" (*Clio Medica* III) New York, 1930, 14-19; DEMPSTER, W. T.: "European Anatomy Before Vesalius," *Ann. M. Hist.*, 1934, n.s. 6, 307-319, 448-469.
5. SINGER, CHARLES: "The Evolution of Anatomy," London, 1925, 121.
6. ALLEN, PHYLLIS: "Medical Education in 17th Century England," *J. Hist. M.*, 1946, 1, 115-143.
7. MORISON, SAMUEL E.: "The Founding of Harvard College," Cambridge, 1935, 249-250; WAITE, F. C.: "The Development of Anatomical Laws in the States of New England," *N. England J. M.*, 1945, 233, 717-718.

The Development of American Anatomy Acts

8. SHEPARD, THOMAS: "The Clear Sunshine of the Gospel Breaking Forth upon the Indians in New-England," London, 1648, reprinted in Massachusetts Historical Society, *Collections*, 1834, ser. 3, 4, 56-57.

9. MORISON, SAMUEL E.: "Harvard College in the Seventeenth Century," Cambridge, 1936, I, 282; MATTHEWS, ALBERT: "Notes on Early Autopsies and Anatomical Lectures," Colonial Society of Massachusetts, *Publications*, 1918, 19, 276-277; MILLER, GENEVIEVE: "Medical Apprenticeship in the American Colonies," *Ciba Sympos.*, 1946-47, 8, 502-510.

10. MALLOCH, ARCHIBALD: "Medical Interchange between the British Isles and America before 1801," London, 1946.

11. MATTHEWS: "Notes on Early Autopsies," 279-280.

12. *Ibid.*, 277-278.

13. NORWOOD, WILLIAM F.: "Medical Education in the United States before the Civil War," Philadelphia, 1944, 2-6, 63-70; PACKARD, FRANCIS R.: "History of Medicine in the United States," New York, 1931, I, 181-206, 341-368; KRUMHAAER, E. B.: "The Early History of Anatomy in the United States," *Ann. M. Hist.*, 1922, 4, 271-286; CORNER, BETSY C.: "William Shippen Jr., Pioneer in American Medical Education," Philadelphia, 1951, 96-126.

14. NORWOOD: "Medical Education," 109.

15. MATTHEWS: "Notes on Early Autopsies," 282-283; *idem*, "Dr. William Lee Perkins (1737-1797)," Colonial Society of Massachusetts, *Publications*, 1920, 20, 12.

16. HARRINGTON, THOMAS F.: "The Harvard Medical School, a History, Narrative and Documentary," New York, 1905, I, 77-87; WARREN, EDWARD: "The Life of John Warren, M.D.," Boston, 1874, 225-226, 242-258; MOORE, THOMAS E. JR.: "The Early Years of the Harvard Medical School, Its Founding and Curriculum, 1782-1810," *Bull. Hist. M.*, 1953, 27, 530-561.

17. NORWOOD: "Medical Education;" RAUCH, JOHN H.: "Medical Education, Medical Colleges and the Regulation of the Practice of Medicine in the United States and Canada, 1765-1891," Springfield, Ill., 1891.

18. WAITE, F. C.: "The Story of a

Country Medical College," Montpelier, Vt., 1945, 9.

19. MORGAN, JOHN: "A Discourse upon the Institution of Medical Schools in America," Philadelphia, 1765, reprinted Baltimore, 1937, 5-18, 30-31.

20. HARTWELL, E. M.: "The Study of Human Anatomy, Historically and Legally Considered," Johns Hopkins Univ., *Studies from the Biological Laboratory*, 1881-83, 2, 84-89, 103; WAITE: "Development of Anatomical Laws," 718-719.

21. Massachusetts General Court, "Report of the Select Committee of the House of Representatives, on So Much of the Governor's Speech, at the June Session, 1830, as Relates to Legalizing the Study of Anatomy," *House Document*, Number 4, sess. 2, 1830/31, Boston, 1831, 91-93.

22. EDWARDS, L. F.: "Resurrection Riots during the Heroic Age of Anatomy in America," *Bull. Hist. M.*, 1951, 25, 178-184.

23. WAITE: "Grave Robbing in New England," 277-278.

24. HARTWELL: "Study of Human Anatomy," 83-84, 102-104; WAITE: "Grave Robbing in New England," 272-275.

25. *Ibid.*, 278-288; JUETTNER, OTTO: "Daniel Drake and His Followers," Cincinnati, 1909, 392-397; EDWARDS, L. F.: "Cincinnati's 'Old Cunny,' a Notorious Purveyor of Human Flesh," *Ohio M. J.*, 1954, 50, 466-469.

26. Conn. Statutes, 1824, ch. 16.

27. Massachusetts Medical Society, "Address to the Community, on the Necessity of Legalizing the Study of Anatomy," Boston, 1829; Mass. General Court, "Report on Legalizing the Study of Anatomy;" "Anatomy," *North American Review*, 1831, 32, 64-73.

28. Mass. Acts, 1830, ch. 57; 1834, ch. 187.

29. HARTWELL: "Study of Human Anatomy," 101; WAITE: "Development of Anatomical Laws," 721.

30. MALL, F. P.: "Anatomical Material—Its Collection and Its Preservation at the Johns Hopkins Anatomical Laboratory," *Bull. Johns Hopkins Hosp.*, 1905, 16, 38-42; HARTWELL: "Study of Human Anatomy," 104-116.

31. JENKINS, G. B.: "The Legal Status of Dissecting," *Anat. Rec.*, 1913, 7, 387-399.

32. NORWOOD: "Medical Education," 422-428; RAUCH: "Medical Education;" WAITE, F. C.: "Advent of the Graded Curriculum in American Medical Colleges," *J. Assn. Am. Med. Coll.*, 1950, 25, 315-322; JAMES, HENRY: "Charles W. Eliot," Boston, 1930, I, 261-266, 273-293; SHRYOCK, RICHARD H.: "The Unique

Influence of the Johns Hopkins University on American Medicine" (*Acta Historica Scientiarum Naturalium et Medicinalium 10*) Copenhagen, 1953.

33. SHRYOCK, RICHARD H.: "The Development of Modern Medicine," 2nd ed., New York, 1947, 248-272, 336-355.

ASSOCIATION'S HOME OFFICE TO BE BUILT

Dr. Joseph C. Hinsey, chairman of the Association's Building Committee, announced on July 26, 1955 that plans have been completed for the immediate construction of a national headquarters building for the Association of American Medical Colleges in Evanston, Ill.

Since its founding in 1876 the Association has maintained its headquarters in Chicago. The move to Evanston will be for the purpose of erecting a building specifically to meet the needs of the home office staff of 30 persons and to serve as a national symbol of the unity of purpose of the medical schools of the country.

The building will be on the southwest corner of Ridge avenue and Central street, two blocks west of the Northwestern University campus on a site made available by the University. It will be modernistic in design, of lannon stone and glass, and will be air conditioned. The architects are Holabird & Root & Burgee.

Special gifts from the China Medical Board of New York, Inc. and the Alfred P. Sloan Foundation, Inc. have made the building possible.

An Increase in the Price of Medical Freedom

W. P. SHEPARD

ONE OF MY earliest recollections of Dr. Will and Dr. Charles Mayo occurred when, as a small boy, I was asked to tend office for my father, who had taken a patient up to the Mayo clinic for consultation. I was carefully coached to say "I am sorry Dr. Shepard will not be in for two days. He has gone to the Doctors Mayo." No one had explained to me what the Doctors Mayo meant, and I imagined it was some sort of superlative Turkish bath where tired doctors were refreshed and stimulated. Now, after half a century, I am astonished at the accuracy of some elements of that boyish vision. Certainly, I am grateful now as I was then that my father should be one of the doctors who could partake at that font of healing wisdom. It was not many years until Dr. Will and Dr. Charles were among my idols in medicine as they were with so many of us.

Having been diverted rather early in my medical career to the "lush green pastures of public health," it was not my fortune to follow in the Mayos' footsteps as a clinician. Never-

theless, we in the public health profession think of these two great physicians as among our leaders, too. We recall that Dr. Will, as a member of the board of regents, made the motion which established the first department of public health and preventive medicine in the medical school, of which Dr. Diehl was the first head. We also recall that Dr. Charles was the health officer of Rochester for many years, carrying out his part-time duties with distinction, despite his many other responsibilities. The school of public health, housed in this building, is endowed by the Mayo foundation and its dean-director holds a chair known as the Mayo professorship of public health.

As we stand in this magnificent new building, it must impress us all as a fitting memorial to Minnesota's two great sons of medicine, who have brought world-wide renown to themselves, their clinic and this school. But this memorial is also a proof of the confidence of the people of a great state in a great university and a great profession.

In this atmosphere of comfort, beauty, security and almost luxury, one hesitates to introduce what may be a disturbing note. I am encouraged to do so only because of the theme of these ceremonies—"Medical Edu-

Dr. Shepard is second vice president of the Metropolitan Life Insurance Company. This article is adapted from an address given at the dedication of the Mayo Memorial Medical School building, University of Minnesota, Minneapolis, October 21, 1954.

cation and Research: Freedom and Progress in Mid-Twentieth Century." This school has never been complacent. It has always stood for the best in medical education and research. Its progress has been phenomenal as one looks back over its history. It has always enjoyed freedom. The preservation of that freedom and progress is what I would speak of today.

To one in the public health field, who has an opportunity to observe, perhaps better than other physicians, the reactions of the public on one side and the reactions of the medical profession on the other, these are disturbing times. In fact, many believe that the practice of medicine as we know it in this country today faces the most serious challenge in its history. There is greater public unrest over the way medicine is practiced today than there ever has been before.

It is a strange paradox that just as American medicine has come into its own as the leader of world-wide medicine, just at the time when we are rendering better service to the public than ever before in history, we should simultaneously face so much criticism.

Much of the criticism centers around the economics of medicine—how it shall be paid for and why it should cost so much. But there is also unrest over the lack of general practitioners. There is complaint over long delays in the waiting room and short, abrupt interviews with the doctor. This aggravation is multiplied when the patient is required to go from one specialist to another at different locations. As one talks with patients who have benefited from medicine's modern miracles, there is still complaint over lack of "tender loving care," a miracle of therapy not to be lightly abandoned.

There is little comfort to be found in the ominous history of this kind of unrest in other nations. In most other countries of the world the practice of medicine has come under government control to a greater or lesser degree despite the opposition of physicians. We in America cannot be lulled by a recent turn in the political wheel of fortune, since that wheel usually continues to turn. Nor can we take too much comfort in the profession's recent apparent success with an organized propaganda campaign when we reflect on the shortcomings and lack of permanence of propaganda.¹ To many it is an open question whether we can preserve our traditional medical freedom for the rest of the century. If we do, it will require scientific analysis of the underlying causes of the public unrest; unique, modern and intelligent efforts to create better public understanding and some change in the direction of medical education.

The first and third of these items seem most pertinent to this occasion. All three will cost us something in time, money and changed attitudes. Of these, changed attitudes is the most difficult and the most costly in effort. But these new costs are a small price to pay for freedom.

Causes of Public Unrest

This is not the time or place to attempt a complete analysis of the underlying causes of public unrest. Suffice it to say it is not an armchair philosopher's job. It requires courageous, active investigation of the most objective kind, using modern methods, to investigate "consumer reaction." By way of illustration let me suggest one or two directions such an investigation might well take.

Perhaps never before have we physicians had to consider such a

mundane problem as "consumer reaction." The traditional attitude of medicine has been almost oracular, letting the public seek us out, issuing instructions by fiat and letting the patient take it or leave it. This may be one of the reasons for curtailed freedom in other countries. In these modern democratic days of universal education, can it be that oracles are going out of fashion?

We are justly proud of the enormous increases in the technologies of medicine and of our mastery of them. Despite this, they seem not generally appreciated by the public. Many people today still long for the kind of service given by the horse and buggy doctor. Why should this be?

Along with the enormous increase in technology affecting every specialty and every aspect of medicine has come the inevitable trend toward specialization, which in turn cuts down the available supply of general practitioners. Apparently we have done little to prepare the public for this change. Detlev Bronk² said recently: "The final concern I have is the necessity for reconciling the need for specialization with the necessity for integrated knowledge. The growing body of knowledge, more difficult scientific and sociological techniques, the more intricate system of legal relationships among men, and more complicated industrial structures all require that man be trained for limited objectives, lest his breadth of training unfit him for any action whatsoever. But, if we must have specialization, I also see a need for specialists in synthesis." Are we recognizing in medicine the need for specialists in synthesis, among them the general practitioner and the public health physician, and are we giving them the professional status they deserve?"

Changes in the Curriculum

Dr. John Cline,³ recent past president of the American Medical Association, says: "The public relations of the American Medical Association in my opinion are the sum total of what Americans think about our Association. . . . Speaking generally, it is the belief of the association that the only basis for a sound public relations program is right action. If the AMA does not make its decisions in the public interest, it can employ all the highpower public relations experts in the country to paint a favorable picture of its activities and they will not be successful. You cannot sell a product if it is not a good one." He later points out that the very foundation of good public relations depends upon the way each individual physician deals with his patients.

The student is preparing for a career, the success of which depends in part on his ability to win the confidence of a nonmedical public. We must ask if he is adequately prepared for this by the five years of winning the intellectual approval of older physicians.

Patient-physician relationships are often referred to as the "art" of medicine, yet the student is usually left to learn that art by emulating his teacher. Unfortunately, this may result in his emulating the bad as well as the good, and thus our physician-patient relationships remain pretty much in status quo. Have our medical schools been deficient in teaching the student how his patients learn? The experiences which the student has during his own long learning opportunities determine to a large degree his sensitivity to the learning process.

This brings us to some logical, nec-

essary and rather urgent changes in medical education, about which we are here chiefly concerned.

Relatively new knowledge and disciplines in the fields of education and sociology seem to call for some changes in medical school teaching. The curriculum has been profoundly influenced, though not materially lengthened, by the knowledge and disciplines recently acquired in the biochemical and biophysical sciences. But what of the curriculum changes indicated by the educational and sociological sciences? Have they been too frequently ignored?

Basic Concepts in Education

The title "doctor" means teacher. Whether the doctor likes it or not, or even knows it, the learning process is inherent in the physician-patient relationship. The patient will learn *something*, be it good or bad, when he consults any physician.

Educators have pointed out long ago that the good teacher is one who arranges the conditions conducive to the learning process. Among these are motivation, clarity of communication, rapport built on mutual respect between teacher and pupil and an opportunity to apply successfully the fruits of new learning.

Except for that age-old pillar of learning, the mother's knee, there are few situations in which the opportunities for learning are greater than in the physician's consulting room. Motivation, so hard to establish elsewhere, is already furnished—the patient has sought the physician. This ideal situation may be shattered if the doctor fails to provide clear communication or if he rejects the proffered rapport.

How much of this do medical students have an opportunity to learn? What do they know about taking

fuller advantage of their natural teaching opportunities; studying the patient's level of understanding and rate of absorption of new knowledge, the value and appropriate choice of visual aids, such as diagrams, slides, printed material; the values of positive rather than negative teaching; dangers of the fear motive and of the power of suggestion? How well do they learn that any change in the patient's attitudes and values depend as much on how the doctor acts as on what he says?

We can suggest then, that one remedy for public unrest with medical practice is more complete patient satisfaction with his personally chosen physician. If we assume that any doctor today has more knowledge and skill than his predecessors of 50 years ago, he must be rendering far better service. If his patients are joining the clamor for government control, it must be because he has failed them, not in skilled ministrations, but in giving them an opportunity to learn. He can and should learn how to convince them, through a true learning opportunity which he creates, that the product they are buying is superior to the one their grandfathers had, and that the product will deteriorate under government control.

Basic Concepts in Sociology

In the sociological sciences there are evidences that we are doing a little better. We may be already beginning to heed one of Osler's⁴ bits of wisdom when he said: "But on the neglect of the study of the humanities, which has been far too general, the profession loses a very precious quality."

Recently the Association of American Medical Colleges sponsored a three-day conference with the pro-

fessors of preventive medicine and public health, in which there was a discussion of the relationships of medicine to society and of the practicing physician's proper place as a learned man in his community.⁵

Several medical schools are arranging to keep their students in touch with individuals or families over a period of a year or more, acquainting them with the techniques of medical social work; of community health agencies, both voluntary and official and of the relief and welfare agencies.⁶ Thus the student learns some of the things so important for him to know in dealing successfully with a patient, such as the effect of illness on the family and the community; differences in degree of disability according to social and economic status; the objectives, problems, strengths and weaknesses of health departments; problems of medical economics; the practice of medicine in industry and medicine's privileges and responsibilities to society.

It is encouraging to see many of the younger practitioners who have benefited from these opportunities in medical school quickly becoming leaders for health betterment in their communities, taking an active interest not only in their county medical societies, but in the local heart association or tuberculosis association, safety council or school health program. Who is better qualified than the local physician, regardless of his specialty, to advise and guide those many groups of nonmedical people who, true to the democratic fashion in this country, will organize for the betterment of themselves and their neighbors?

Not a Formidable Task

Teaching the essentials of helping

the patient to learn, of the interdependence between medicine and society, of the important things the citizens of a democracy must do to preserve their individual and their community health is not a formidable task even in the present crowded medical curriculum. It can be done as a cooperative program between the department of preventive medicine and public health, medical social service and one or more of the clinical departments such as pediatrics or psychiatry. The two major essentials are an encouraging attitude by the average student's idol, the clinical teachers and an adequate staff in preventive medicine and public health.

Conclusion

Preserving medical freedom is important and urgent. It will be done primarily by the practicing physician in his normal relationships with his patients. A medical profession enlightened in its teaching power and dedicated to its responsibilities will have little trouble with its public relations.

REFERENCES

1. SHEPARD, W. P., SMITH, C. E. and BEARD, R. R.: "Essentials of Public Health," J. B. Lippincott Co., Philadelphia, 1952, p. 371.
2. BRONK, DETLEV: Opening Address, National Health Forum, National Health Council, New York City, 1954.
3. CLINE, JOHN: "President's Page Editorial," *Journal of American Medical Association*; 148; March 29, 1952.
4. BEAN and BEAN: "Osler Aphorisms," Henry Shuman, Inc., New York, 1950.
5. CLARK, C. G.: "Preventive Medicine in Medical Schools—Report of Colorado Springs Conference, November 1952," *J. Med. Educ.*, October 1953, Part II.
6. YOUmans, JOHN B. and RUSSELL, MARIAN E.: "Teaching Social Aspects of Medicine in the Medical School," *J. Med. Educ.*, 29:9, August 1954.

Case Method in the Laboratory Study of Pathology

J. F. A. McMANUS

DISSATISFACTION WITH time-honored teaching methods in pathology was striking in the recent Teaching Institute*. Laboratory study of gross and microscopic materials, lecture methods and seminar sessions were discussed in relation to their ability to contribute to an understanding of the patient. Many criteria of usefulness in teaching were suggested, with perhaps the most agreement on (1) the consideration of disease as a dynamic process having points of reference in time and space—the “natural history of disease”—and (2) a continued emphasis upon the disease process as affecting specific individuals—a patient-centered pathology.

The method of the laboratory study of pathology at the University of Alabama Medical Center teaches the natural history of disease by the study of individual autopsy cases. While it has been discussed with many medical educators it has not been published in detail. It leads to, or is accompanied by, enthusiasm on the part of the students. Because of

its usefulness over the past three years, and the apparently adequate preparation for patient care which it produces, as well as several requests for detailed description, it is here described and evaluated. The method at this stage has in large degree passed from the frankly experimental stage in which it began.

The Case Method

A group of 12 or 13 students spend each two or three hour laboratory session in a room studying a selected autopsy case. The cases are rotated from session to session among the groups. Each room has a projection screen, microprojector and assorted books, a table, stools, a blackboard and blackout curtains.

In the first half of the session the students, each of whom has been furnished a mimeographed clinical abstract, reviews on his own the gross specimens and some of the microscopic sections of the case. Sample examples of the case rotation scheme (Table I), clinical abstract (Table II) and a typical list of gross organs and microscopic sections (Table III), are appended. During this time the students usually discuss the case among themselves and look at the sections either individually with their microscopes or as a group by

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*French Lick Springs, October 1954 Teaching Institute on Pathology, Microbiology, Immunology and Genetics.

microprojection. They can use any auxiliary help they can find; textbooks, notes, the set of class slides which is furnished to them with a list of diagnoses, a dictionary, etc.

At the end of this laboratory section the student is required to present an anatomical diagnosis in pathogenetic sequence and an interpretation of the case in a sentence or two. Each of these presentations should be an individual enterprise. Actually within a group, a good diversity of opinion in diagnosis is represented. Undoubtedly there is some exchange of information during the preliminary portion of the case study but

individuality, initiative and the competitive spirit assure that the diagnosis and interpretation are largely personal. These are written and submitted on the reverse of the paper which carries the clinical abstract.

Directed discussion with an instructor who is familiar with the case occupies the second half of the laboratory session. This follows one of several forms. Usually the instructor collects the finished diagnoses, reviewing them very briefly to assess the group accomplishment on the specific case. The instructor is furnished with a copy of the complete

TABLE I
CASE ROTATION SCHEME
MEDICAL STUDENT LABORATORY (Monday 2-4 p.m.,
Tuesday 3-5 p.m., and Friday 2-4 p.m.)

DATE	I*	II	III	IV	V	VI
November						
22	S5 LSG	A-2447 SPK	A-3211 RWM	A-2871 JFAM	A-2890 IMJ	A-3121 CKD
23	S6 CSB	S5 LSG	A-2447 SPK	A-3211 RWM	A-2871 JFAM	A-2890 IMJ
29	A-3008 VAH	S6 CSB	S5 LSG	A-2447 SPK	A-3211 RWM	A-2871 JFAM
30	A-2961 WWW	A-3008 VAH	S6 CSB	S5 LSG	A-2447 SPK	A-3211 RWM
December						
3	A-3121 CKD	A-2961 WWW	A-3008 VAH	S6 CSB	S5 LSG	A-2447 SPK
6	A-2890 IMJ	A-3121 CKD	A-2961 WWW	A-3008 VAH	S6 CSB	S5 LSG
7	A-2871 JFAM	A-2890 IMJ	A-3121 CKD	A-2961 WWW	A-3008 VAH	S6 CSB
10	A-3211 RWM	A-2871 JFAM	A-2890 IMJ	A-3121 CKD	A-2961 WWW	A-3008 VAH
13	A-2447 SPK	A-3211 RWM	A-2871 JFAM	A-2890 IMJ	A-3121 CKD	A-2961 WWW

*Roman numeral refers to student group number and room number.

1. S5. Cancer of G. I. tract (LSG).
2. S6. Papanicolaou smears: Exfoliative cytology in diagnosis of cancer (CBS).
3. A-2447. Squamous cell carcinoma of cervix.
4. A-3211. Anaplastic carcinoma of lungs.
5. A-2871. Adenocarcinoma of prostate.
6. A-2890. Hepatoma.
7. A-3121. Hodgkin's disease.
8. A-3008. Chronic lymphatic leukemia.
9. A-2961. Adenocarcinoma, sigmoid colon.

protocol, a corrected anatomical diagnosis and a list of suggested topics for discussion (Table IV).

This second portion of the case laboratory follows the line of a seminar. One student is chosen or volunteers to present the case. He may choose to review the clinical abstract and then present the pathological findings, or the reverse procedure may be followed. Many students prefer to work backward from their anatomical diagnosis, pointing out relevant details in the clinical abstract. A considerable amount of choice is left to the student since he is doing most of the work and the instructor acts as a moderator. In these case-correlative sessions a slant toward the historical approach is readily developed.

The discussion part of the case lasts for one hour or one-and-one-half hours, a period of time equal to that given to the case study.*

Discussion

The case method of study represents a "learning by doing" development which resembles in many ways the clinical clerkships on the wards. Perhaps pathology could be learned best by a single individual studying a case during a laboratory session and reviewing it in detail with an instructor. Limitations of personnel make this impossible. While something may be lost by group study

*The student diagnoses and interpretations are graded by the instructor and a record is kept for future reference when the semester and final grades are being discussed.

TABLE II
CLINICAL ABSTRACT
Autopsy No. 3121

This is a case of a 13-year-old male who was admitted to Jefferson-Hillman hospital on 4-29-53 with the chief complaints of headache, intermittent nausea and vomiting, anorexia and generalized malaise of seven day's duration. This was the fourth hospital admission.

The present illness dates back about four years at which time the patient developed a rash over the entire body, beginning as small bumps and wheals and progressing to vesicles and on to pustules. The rash lasted approximately one month but returned several times within the next two years, each time lasting one month. Three years ago the patient had a similar episode to present illness. He was admitted to the hospital complaining of general malaise, weakness, fever, nausea and vomiting, aching abdominal pain in the right upper quadrant, not radiating, aggravated by eating and relieved by vomiting, and aching frontal headache. P.E. at this time revealed palpable lymph nodes in the neck bilaterally, anemia, and enlarged spleen. Lymph node biopsy was performed and definitive diagnosis was made. The patient had been followed in Hematology Clinic for the past three years, receiving medical therapy but has had several episodes similar to the present illness. The patient had had 12 pounds weight loss in the past three weeks prior to the last hospital admission.

LAB. DATA: On 4-29-53 CBC revealed: RBC 4.2 million, WBC 9,300, Hgb. 11 gms. Diff.: Normal, approximately, C.I. .83, platelets abundant. On 5-1-53 RBC 5.4 million, WBC 3,800, Hgb. 10 gms. Diff.: Normal. Platelets 200,000. On 5-3-53 RBC 4.1 million, WBC 4,500, Hgb. 9.5 gms., slight shift to the left, platelets 250,000, urinalysis on 4-29-53 essentially normal. Serology negative. The patient was treated vigorously on medication under supervision of hematology department and discharged on 5-6-53 as improved. On 7-8-53 while on the way to the clinic the patient lapsed into a coma and was taken to Hillman Emergency Room. Examination revealed a very rapid heart rate and blood pressure 55/40; shortly thereafter respiration ceased. Artificial respiration was started but no heart beats could be detected. Adrenalin was given into the heart and faint heart beats were heard again for some 2 or 3 minutes and again ceased. Adrenalin, coramine and caffeine were given and artificial respiration was continued but the patient expired at 10:30 A.M. on 7-8-53.

TABLE III
GROSS AND MICROSCOPIC
SECTIONS OF A CASE

Gross Material.

A-3121

Heart; aorta; posterior half of each lung; half spleen; slice of liver; stomach, duodenum, pancreas, bile ducts, gall bladder; half of each kidney, ureters, bladder, pelvic organs; slice of each adrenal; neck organs; axillary nodes; terminal ileum and cecum.

Microscopic Sections.

Lymph nodes, heart, lung, liver, spleen and bone marrow.

there are numerous advantages: group participation, competition and mutual criticism, the better student helping the poorer, etc. The presentation of the case to the student group by one of its members develops some facility in public speaking, the "talking on one's feet" which is lacking in many students when they reach us.

The case method of study begins within the first month of the course. (Three laboratory sessions and three lecture periods are given in pathology each week; one year for the medical students, one-half year for the dental students.) For the first three weeks in a total of nine lectures and nine seminars the principles of general pathology and its main features are presented. An attempt is given even here to show the fashion in which the "lesions" of general pathology are combined into the "diseases," inflammation plus necrosis in lung abscess and so on. The ninth lecture and one of the seminar sessions deals specifically with this synthetic process, which it is hoped the students will apply for the rest of the course.

Associated with the cases in the pathology course are both lectures and seminars. While some attempt is

made to relate the cases to the current lectures, the selection of a particular case for the laboratory session is not made to depend upon every feature in it having been covered or being covered in the lectures.

The seminar sessions are discussion groups scheduled (2 to 7 cases—Table I) to emphasize important aspects of pathology not adequately covered in either lectures or cases. They serve also as review sessions, orienting in type. Typical seminar headings include: coronary artery diseases—types and effects; bronchogenic carcinoma; types of pneumonia; the anemias; lymphomas and leukemias; pneumoconioses; pathology and complications of diabetes mellitus. A total of 70 cases are studied by the students in medical sophomore pathology and during this time there are 20 seminar sessions. The dental sophomores have one-half of this with the selection of cases and seminars directed to special problems of dental practice.

The historical development of this method of laboratory work is derived from experiences at the Johns

TABLE IV
ANATOMICAL DIAGNOSIS AND
SUGGESTED TOPICS

Group XVI

Autopsy No. 3121

Anatomical Diagnosis

1. Hodgkin's disease, extensive, involving lymph nodes, spleen, liver and sternal bone marrow.
2. Healed fibrous pleurisy, right lung.
3. Mid-zonal necrosis, liver, extensive.
4. Congestion, liver, lung, spleen.

Suggested Topics For Additional Discussion

1. Malignant lymphoma, pathology and clinical manifestations.
2. Liver necrosis, types and etiology.
3. Effect of therapy on pathologic anatomy of lymphomas.

Hopkins hospital under the late W. G. MacCallum and at the University of Virginia under Dr. James R. Cash. One of MacCallum's contributions to the teaching of pathology was the preservation of certain organs from autopsy in earthenware jars and buckets and the subsequent utilization of selected cases in one of a dozen teaching rooms. The student groups rotated through these rooms and saw the cases under the guidance of an instructor. The cases were presented as typical cases or as unknowns as the instructor desired. Some correlation was made with the class set of slides in microscopic studies, and sometimes the instructor would "pull" the slides of one or more cases for group or individual study.

Dr. James Cash at the University of Virginia had modified the case method in that after a few preliminary weeks of laboratory sessions the students would be given as unknowns, in groups of 12 or so, a set of gross organs and relevant slides. After one hour the students prepared an anatomical diagnosis on the basis of gross and microscopic findings. This was then discussed and reviewed by an instructor.

The University of Alabama Medical Center method is that of the University of Virginia with the addition of the clinical abstract furnished each student as he begins the study of the case. The advantage is that the student is studying the end result and the clinical history of a process comparable to that which he will shortly face on the wards. It is, in fact, the first contact of the student with the patient. This appeals to the student; he is coping with the problem of a sick patient and in conditions admirably suited for diagnosis. The factor of individual initiative of

the Virginia system is maintained with the additional advantage of the clinical relevance of the pathology course being constantly emphasized.

Minor Difficulties

As this case method of study has been in operation for three years only, it is probable that many shortcomings will appear in time. Those which have been noticeable to date are minor. Some of them are worth detailing. It seemed that the poorer student or students in a group might be traveling on the talents of the better. At first glance this seemed undesirable but the ability of the poorer student to improve made it seem likely that some teaching was actually being done by the better student. This in itself was thought part of normal learning in groups.

Instructors vary in their ability to work the case method. Some, particularly the more junior members of the staff, insist on demonstrating the case themselves, pontificating briefly on the pathology, and hurrying quickly in a discussion of the treatment where they were more superior to the group. This approach can be minimized by preliminary discussion with the instructors but it can be said to be, so far, a recurring problem.

When a student is confronted first with an unfamiliar lesion he may search in his pathology textbook, or in the museum specimens, for something resembling it. The student with a smaller textbook may fail to find the appropriate picture. A large, companion atlas of pathology, with illustrations of typical lesions arranged for different organs would be most valuable. Failing this, a complete museum of common lesions arranged by organs would be desirable. Once the student has found some-

thing resembling the specimen in an illustration or in the museum, he investigates the clinical description to compare it with the current case. Later, the analysis of a case is more logical, working into an analysis from the clinical findings or from the microscopic appearances. Throughout the greater part of the course, an adequately illustrated textbook or a good museum is very useful as providing leading or confirmatory evidence.

Early in the use of the case method of study it was found that a definite handicap existed in that no formal training in medicine, clinical pathology or in microbiology had been given the students before their course in pathology. Much of the time was spent in looking up common medical terms such as anorexia, dyspnoea, the normal values for chemistries and blood counts, the disease-producing abilities of various infectious agents, etc. This work was soon divided up within the group, and the time used was considerably reduced. Actually, the students were learning useful data even if not specifically "pathology."

Clinical photographs, x-rays, E.K. G.'s and all the other accessory diagnostic impedimenta would be useful with the clinical abstracts. To date we have not attempted to provide these. Such inclusions would increase the value of the clinical portion of the case but do not now seem justified in the routine study of pathology.

There has been some consideration given to the possibility that one year of pathology of this type, probably 70 cases or so, does not serve as an adequate introduction to clinical work. The student does not become anything resembling a competent morbid anatomist or pathologic histologist, even as much as in the older rote-memory, "draw and describe"

type of course. It may be that the actual amount of information about disease which the student acquires is less than in older type courses. What the student seems to learn is an appreciation of the relationship between symptoms and lesions and particularly the pathologic basis of the common diseases. The students have read pathology, they have seen the effects of disease and learned something of its clinical features.

Experimentation

It is not to be understood that the case method of study as presently described is taken to be the ultimate development of the method. Experimentation is continuing along several lines.

In the first instance, a uniform calibre of instruction does not seem assured until each instructor has been introduced into the philosophy and mechanics of the case method. Some instructors "take to" the case method naturally, exploit its possibilities and themselves learn with the help of the students. I have not seen any interested instructor who could not learn the technique of the case discussion but several instructors have been slow to learn.

For our teaching rooms, we have used parts of large laboratories, small research laboratories of different departmental members, conference rooms and, in short, any available space where 12 students can be accommodated with the gross organs, a microprojector and the slides. We now have six separate and adequate rooms, two of them having been made by partitioning a larger laboratory. All of the rooms are adequate for case study but only two of them are really satisfactory for the seminars. Room arrangement, size and shape are presently being re-

viewed to discover further the desirable qualities of the rooms.

The projection mechanism while adequate leaves something to be accomplished. It might be that in place of microscopic sections, it would be better to have selected lantern slides of photomicrographs of the case. Next year, some cases will be tried with photomicrographs instead of the microscopic sections. If it develops that microscopic pathology in the necessary minimum can be learned in this fashion, the use of microscopic sections in the case method may be discontinued, or at least reconsidered.

One of our instructors, fresh from clinical service and incidentally an instructor in both pathology and medicine, teaching physical diagnosis, goes into the group at the beginning of the first hour and answers some questions, orienting the group to some degree. The results of this experiment are being watched carefully.

Whether two or three hours is preferable for the case method of study still merits some consideration. In some complicated cases it seems certain that two hours is not sufficient. Probably further clinical details or impressions should be given in the abstract. In most instances, three hours is too long for any one case with reasonable application by the group. The longer period may be found to be desirable for cases which can serve as starting points for discussion of complicated problems. More care must be given to the time scheduling of the individual case.

The accelerating of case study by having several sets of microscopic slides available for each case, or for the more difficult cases, is being considered. In view of the possibility of doing away with sections and replacing them by photomicrographs these plans for increasing the slides

in some cases are being deferred.

The use of group teaching methods allows the separation of special groups according to level of information, if it is thought desirable. Formation of an elite group is under consideration at present with special handling and activities proposed to exploit the talents of the group. While the selection of a superior group may be in keeping with the ideas of using capacities to the utmost, it is argued that the help which the better students presently give to the poorer ones would be lost. Other aspects of the psychological and pedagogical difficulties arising in the selection of a superior group are now under study.

Acknowledgements

The introduction of the Alabama case method depended in the first instance upon the cooperation of my associates Dr. B. M. Hathaway, Dr. Sidney P. Kent, and later, Dr. Robert W. Mowry. More recent developments are due in large part to Dr. Kent and Dr. Mowry.

Summary and Conclusions

The case method of laboratory study of pathology as used at the University of Alabama Medical Center is described and discussed. Twelve students are each furnished a clinical abstract and the group as a whole studies the gross organs and appropriate microscopic sections of the one case. At the end of the lab session, the students complete an anatomic diagnosis presented in pathogenetic sequence and a brief interpretation of the case. For the latter half of the laboratory session the students review the case with an instructor, usually with a student describing and detailing his findings.

The Medical Curriculum

"The hardest conviction to get into the mind of a beginner is that the education upon which he is engaged is not a college course, not a medical course, but a life course, ending only with death, for which the work of a few years under teachers is but a preparation."

WILLIAM OSLER, *The Student Life*.

THE MEDICAL CURRICULUM was discussed at the First World Conference on Medical Education organized by the World Medical Association in 1953, at which many original views were expressed and new experiments in medical education described.¹ The British Medical Association has devoted considerable attention to this subject^{2, 3}; and the creation of the College of General Practitioners is in some part due to a revived interest in, and growing dissatisfaction with, the undergraduate and postgraduate training of family doctors.⁴ In the spring of this year, when 15 of the 22 regional faculties of the College in the British Isles had been formed, it was felt that some of these groups of members and associates, through their faculty boards, might usefully survey the medical curriculum in the light of their own professional experience.

Until then many individual opinions had been expressed, but there had been no means of assessing how widely these were held. The object of this survey has been to put forward certain controversial points, and to bring to light opinions about the medical curriculum held by a number of keen general practitioners. It is

hoped that the results may stimulate study, both within the College and by the profession as a whole, and that they may contribute something of value to the work of those responsible for the future teaching policy in medical schools.

In the analysis of the replies to a questionnaire prepared by the Council of the College, and in this report, we have tried to examine the curriculum in the light of modern requirements—the need to turn out newly qualified doctors with a sound basic knowledge and broad understanding not only of more than 20 specialties but also of general practice and family doctoring. Every medical student must have a sufficiently broad general education to look at the world from a humanitarian rather than a materialistic point of view. He must be intellectually humble and resilient enough to be able to alter his ideas, because time inevitably changes old beliefs. He must develop a self-discipline in his way of thinking to protect himself from specious advertisements, from unscientific publications, and journalistic enthusiasm. He must be the severest critic of his own work.

These are the basic attributes needed by all medical graduates in whatever branch of the profession they eventually elect to serve. To develop these qualities with economy of time and maximum concentration

This is a report of the Undergraduate Education Committee of the First Council of the College of General Practitioners and is reprinted from the *British Medical Journal*, No. 4871, May 15, 1954.

of effort is, in our view, the purpose of the curriculum. It is no easy target, and to attain it every item in the medical student's training should be scrutinized and ruthlessly discarded if it does not contribute something essential to these ends.

School Education

When young men or women decide that they would like to become doctors, what is the best way in which they should spend their last one or two years at school?

There is a choice between early specialization in scientific subjects—chemistry, physics, botany, zoology—or continuation of a broad general education, including the classical way of thought, until the time of leaving school. This question is at present exercising the university authorities, some of whom already insist that the young student shall have passed the first medical examination before joining them.

In the discussions which have taken place at meetings of some of the regional faculties of the College, or their boards, only a few doctors have favored early scientific specialization. The great majority preferred the idea of a liberal education for a liberal profession. One faculty quoted Sir Richard Livingstone in his *Education for a World Adrift*⁵: "The knowledge necessary to living must be imparted. People must be taught to use their brains. . . . Knowledge is important, still more so is the power to use it; but most important of all is what a man believes, what he thinks good and bad, whether he has clear values and standards and is prepared to live by them. . . . As Plato said, the noblest of all studies is the study of what man should be and how he should live. . . . If Greek thought and

Christianity created the soul of Western civilization . . . then these are the philosophies for which we are looking, and before his education is completed everyone should have an idea of what they are."

A number of general practitioners were in favor of combining evenly, during the last one or two years at school, a general education with an approach to scientific subjects, but without stretching the latter to the full extent of the syllabus for the first medical examination. Many expressed doubts regarding the necessity of taking chemistry, physics, botany and zoology to the high level now demanded in the first medical examination; and there was an appreciable feeling that the curriculum could well be shortened in these subjects.

Selection of Medical Students

Are we satisfied with the present method of selection of medical students?

Only one faculty thought that selection now was altogether satisfactory. The others felt that there could be improvement in some way. It is remarkable how great a change has occurred since the 1920's, when almost anyone of reasonable intelligence was welcomed in a medical school. At that time an appreciable number of those who started did not finish the course, because they or their teachers decided that medicine was not for them. It was an automatic method of selection and rejection. Nowadays there are many more applicants than vacancies, so that medical schools have had to adopt some form of selection. This early selection is of great importance; but it is not a simple matter, and we are not satisfied that present methods always ad-

mit those candidates who will make the best doctors. Academic achievement in scientific subjects, though important, should not be rated too high at this stage; character, home background, heredity and school record are probably of equal importance in the long run.

Every study group considered that a wise and experienced general practitioner could usefully assist a dean in the selection of students. Whether or not it is essential for him to be still in active practice is debatable, because this helping in the selection of medical students might be a useful role for men or women who have retired, after a sufficiently long time in general practice, provided that they are not too old. In the selection of all our future doctors, about half of whom will become general practitioners, it seems logical that there should be at least one person on the selection board with first-hand knowledge of the life for which so many of these young people are being chosen.

A Balanced Curriculum

(1) Does the curriculum give a satisfactory basic education in all branches of medicine?

Each doctor looks back on his own training and treats such a question from his own point of view. Some faculties thought that too much time was spent with the specialties, such as advanced surgery. In the old curriculum it was considered necessary for every medical student, whatever his future, to have a detailed knowledge of anatomy and of the surgery for which this prepared him, so that when he left hospital he would be able to undertake operations which nowadays he would never attempt. Surgery then was taught by general surgeons; nowadays few of these exist, and the student in hospital may

have to spend long hours watching complicated, highly specialized techniques which he may never need again.

Some felt that too much time also was spent on the differential diagnosis of obscure conditions, and that there was too little teaching of the simpler variations in health and disease. Nearly all believed that at present the basic curriculum did not, in all schools, include a sufficient insight into general practice. This was discussed in detail last year in the report of this committee on "The Teaching of General Practice by General Practitioners."¹⁰ The aim of the general medical curriculum is, surely, to produce broadminded doctors rather than medical scientists or skilled technicians.

(2) Is there a case for shortening the basic curriculum by omitting detailed studies of certain subjects?

If students are to be taught more about the commoner diseases and are to be given more insight into general practice, the curriculum will need pruning. There is much dead wood, and also many overgrown branches, which can well be lopped off the present curriculum. The introduction of the preregistration year and the two years of national service have made this pruning all the more essential.

One faculty quoted Lord Horder¹¹: "The anatomy, the physiology, the chemistry and the physics of the pre-clinical studies of the medical student should be directed towards the actual examination of the patient. I think we took a step backwards when we put the academic anatomist, physiologist and chemist in charge of pre-clinical studies. These men staked out large claims in their respective spheres as though medical students were in training for professorships in

these subjects rather than being doctors in embryo. This view led me to plead for spending less time over the intimate structure of the organ of Corti and the theories of colour vision, and more time over . . . simple instruments by which the structure and functions of the normal body are studied. . . . I still meet doctors who have never seen the optic disk clearly, nor the vocal cords at all."

(3) *Should more detailed attention be given to certain branches of medicine, and to common diseases?*

Faculties were unanimous in declaring that this was necessary. Provided the rarer diseases are included to some extent, it should be the hallmark of a good teacher to illustrate sound medical principles on a disease which is common, as often as possible, rather than on something which is obscure. It is not unusual now to find that the commoner conditions are mentioned only by name and that it is the rarity which is presented for demonstration. The dispensary system of teaching general practice, as at Edinburgh, has given the student a good picture of the commoner diseases.

Dermatology, orthopaedics, psychiatry, allergy, rheumatic disorders and diseases of the ear, nose and throat are not always taught as fully as their importance in general practice demands. Pediatrics is not so much a specialty as a grouping together of all branches of medicine and surgery in a particular age group. Family doctors treat many children, and there can be no better training for many branches of medicine, and for general practice in particular, than a spell among children. At the opposite end of life there is study of the effects of stress and of degeneration on the body and mind. Geriatrics is a subject which has been closely observed by

generations of general practitioners; but only recently has it begun to receive in medical schools the attention it deserves.

(4) *Should more attention be given to the management of the individual patient?*

In the Nuffield Trust Survey on General Practice, Dr. Stephen Taylor distinguishes the work of the general practitioner by the one main characteristic of continuity. No other doctor has a continuing responsibility for his patient from year to year and from illness to illness, from the cradle to the grave. Any young man who is worth his salt will accept this responsibility as soon as he realizes what is required of him; but it is unlikely that he will appreciate this in hospital, because the patients whom he sees there appear to have been cut off from their family doctors, who rarely enter teaching hospitals. Both general practitioners and consultants are equally to blame for this. Doctors who send their patients to hospital with a scrappy note or a visiting-card advertise themselves as travesties of good family doctors, and are directly responsible for giving both students and their teachers a poor opinion of general practice and the men in it. When we, as general practitioners, write about our patients to consultants we should be on our mettle to show them, and any students whom they may be teaching, that we always take a proud interest in our patients both as individuals and as medical problems. It must be remembered that a derogatory remark about general practice would probably not be made if it were undeserved.

On the other hand, consultants might do a great deal more in teaching this continuity of care to their students if they knew a little more about it themselves from personal

experience. Admittedly it is difficult to teach this continuing responsibility in hospital; but there are several ways in which it can be done. One is practiced by a consultant in a London teaching hospital, who uses the domiciliary visit as a teaching experience: he always takes a student with him, and we believe that attendance at such a consultation between the specialist and the general practitioner at the bedside is one of the most useful practical experiences for the student that can be devised. Another is in the writing of letters: the student will sometimes see those from the general practitioner to the hospital, but he rarely hears the advice which is sent back from the consultant to the family doctor, or realizes that the patient's visit to the hospital is but a brief episode in a much longer story. A third method is attendance at health centers or at a general practice teaching unit attached to the medical school, as at Edinburgh. The fourth is attendance of students on general practitioners themselves.

(5) Can more be done to teach students the relationship between family doctors and consultants?

Closely bound up with this problem of continuing responsibility is the student's assessment of the relative roles of family doctor and consultant. His experience in hospital may give him the idea that all medical roads lead to the hospital, and that general practitioners are merely signposts to the proper out-patient department. Until he goes out himself, he knows little of the great mass of good medical work done by family doctors without reference to hospital or specialists at all, and is unaware that both patients and general practitioners regard the specialist as someone who, by virtue of a particu-

lar training and knowledge, can help the general practitioner to care for his patient.

All doctors are members of a team, and the student must be taught that, for the patient's benefit, the co-ordination of all the different functions of this team is the responsibility of the family doctor. The student should learn from the very start how this can be done; he should not have to find it out slowly for himself later on, rather to his surprise. Probably the best ways for this co-ordination to be taught are for students to meet general practitioners from time to time throughout their clinical studies, both outside hospitals—by attending domiciliary consultations and by visits to general practices, health centers or dispensaries—and inside hospitals—by the presence of general practitioners as lecturers, and as spectators or commentators on teaching rounds. This contact of students with general practitioners will be as valuable to those who remain on in hospitals as specialists as it is to those who go out into the world as family doctors.

(6) Can the student be taught to realize better the wide field covered by general practice?

Most of the faculties felt that the student, whatever his future is to be, should be taught to recognize how much of medicine lies within the realm of the general practitioner. When he starts in practice he will then be less bewildered at the wide field he has to cover; and consultants, specialists, and students at hospital will be less mystified by the range of work a general practitioner has of necessity to do himself. The student must learn to appreciate clearly the great volume and variety of service that is desirable for a family doctor to undertake, and what should be referred to a specialist if

there is one within reach. To learn all this will help the student also to discover more easily his own aptitudes and limitations, so that he may decide wisely on his future career.

Conclusions

A questionnaire on the medical curriculum has been discussed by some of the regional faculties and faculty boards of the college. It is hoped that the results will stimulate further study and a continuing review of medical education. In this interim report it is suggested that:

1. The last two years at school should be evenly divided between receiving a broad education and an introduction to the scientific method.

2. The present method of selecting medical students could be improved by co-opting a general practitioner on to each selection board.

3. The medical curriculum requires revision so as to give students a broader introduction to all branches of medicine, including general practice.

4. The present division between preclinical and clinical subjects is too sharp.

5. There is a tendency for too much time to be spent at present on obscure subjects and highly technical procedures, to the exclusion of a study of common disorders.

6. Medical students should be given more insight into medicine as it is practiced outside hospitals.—G. O. BARBER (Essex), Chairman of Committee; G. F. ABERCROMBIE (London), Chairman of Council; J. H. HUNT (London), Honorary Secretary of Council; J. CAMPBELL YOUNG (Belfast); W. V. HOWELLS (Glamorgan-shire); J. G. OLLERENSHAW (Yorkshire) and RICHARD SCOTT (Edinburgh).

REFERENCES

1. *Brit. Med. J.*, 1953, 2, 478.
2. British Medical Association, *The Training of a Doctor*, 1948. Butterworth.
3. British Medical Association, *General Practice and the Training of the General Practitioner*, 1950.
4. Report of the General Practice Steering Committee (1952). *British Med. J.*, 1952, 2, 1321.
5. Livingstone, Sir Richard, *Education for a World Adrift*, 1943. Cambridge University Press.
6. *British Medical Journal*, 1953, 2, 36.
7. Horder, Lord, *Brit. Med. J.*, 1951, 2, 1359.

Report of the 1955 Matching Program

JOHN M. STALNAKER AND E. C. SMITH

IN THE FOURTH year of the matching program for internships starting July 1, 1955, 814 participating hospitals attempted to fill 11,075 internships from the 6,713 students who participated. The operation was completed on schedule, and the results were distributed nationally on March 12-14, 1955. Because of the large disparity between openings and available students, again many internships were left vacant.

The actual technological procedure of matching is now well established. Time pressure during the crucial period of data preparation remains great. Accuracy pressure is even greater. In the period between January 26 and February 17, over 50,000 reported expressions of ranking were received, recorded on punched cards and confirmed to the originator. Similar processing was necessary for the hundreds of changes that poured in during the following week. Every piece of basic information sent to NIMP is subject to the same confirmation procedure. The information is placed on punched cards and introduced to an IBM machine, which prints the punched-hole recording. This translation is then sent to the originator who personally checks that NIMP has correctly recorded his preferences. This procedure, in effect, guarantees the accuracy of the basic

data on which the matching is made.

On about February 23 the actual matching operation begins. As in the previous weeks, the machines hum at a 16-hour-a-day level. The matching is done in cycles with two decks of punched cards. Each card in one deck represents a student's evaluation of one hospital and that hospital's evaluation of him. In the other deck, each card represents the number of vacancies still remaining in each internship program offered in the matching program. Each successive cycle matches permanently—or eliminates—more and more cases. Each cycle is shorter than its predecessor, because there are fewer cards. Eventually comes a cycle, usually the ninth or tenth, in which there is no movement in the remaining deck of choices. The matching is over. Each student has been matched with the highest choice on his confidential rating form which had a place for him. Each hospital receives the men it wants and who preferred that hospital more than any other hospital available to them.

The results are audited—checked “backwards” to the origin. After this step is completed, the reports to students and hospitals must be prepared. A notification slip is prepared for each student. Each hospital gets a list of those matched with it. Each dean gets a complete list of the matching for his students as well as a tabulated analysis of the number

Mr. Stalnakar is secretary of the NIMP. Mr. Smith is director of operations of the NIMP.

TABLE I
General Results 1952-55

Year	Hospitals partici- pating	Programs offered	Total positions offered	Total positions filled	Per Cent filled	Number unfilled positions	Students partici- pating	Students un- matched
1952	795	1068	10414	5564	53%	4850	5681	117
1953	808	1102	10971	5744	52%	5227	6033	289
1954	820	1032	10729	6051	56%	4678	6412	361
1955	814	1056	11075	6379	58%	4696	6713	334

of his students who got their first, second, etc., choices. Individuals are not identified, of course, in this tabulation, since this information is confidential.

The complete hospital results—number sought and number matched—are compiled for the over 800 hospitals and copy sent to the printer. The results booklet is printed and returned in time to be included with the notices going to the unmatched students and to all the hospitals.

The results are due in the schools and the hospitals on a Monday. On the previous Thursday the West Coast results are mailed. On Friday the other non-Chicago results are mailed. On Saturday morning the Chicago results go into the mail. And on Monday the good and bad news should reach all students and hospitals.

This was a relatively quiet matching year. Comprehension of the nature of the matching program ap-

peared to be at its highest level to date. Material received from students and hospitals was in excellent shape and changes were no more frequent than in previous years.

Some infractions were reported although in no way commensurate with the crop of rumors previously reported. All reports were checked closely and in the few cases where verified infractions had occurred, assurance was received of the particular infraction not re-occurring. Some complaints received, as always, were based on a misconception of the intern rules on the part of the complainant.

As of this writing, there are only two reports of refusal to follow the 1955 results of the matching that appear to be potentially difficult cases, and it is hoped that these will be resolved amicably. Thus far in the four years of matching only five cases have been sent to the Biographical Records Department of the

TABLE II
Percentage of Students Matched by Order of Choice

Year	Per Cent First choice	Per Cent Second choice	Per Cent Third Choice	Per Cent Fourth Choice or higher
1952	84	10	3	3
1953	85	10	3	2
1954	82	11	4	3
1955	76	14	5	5

TABLE III
Applications Per Student

Year	Number of Students	Number of Applications	Number Per Student
1952	5681	21728	3.8
1953	6033	19416	3.2
1954	6412	21579	3.4
1955	6713	25617	3.8

American Medical Association for permanent recording, a step taken only when one party refuses to follow through with the matching results and the other refuses to grant a release.

Participation was again high. Table I gives the general results of the four programs.

With only 12 hospitals approved for internship training by the Council on Medical Education and Hospitals of the AMA not participating* in 1955, hospital membership was at the 98½ per cent level, as high as ever before. Most of the 12 non-participating hospitals aim either at off-year graduates of medical schools on the quarter system or exclusively at foreign graduates.

Student support of the program continues at a high level, and indicates that the students recognize the merits of the program. It is difficult to define the total number of eligible students, because of gradu-

ates who begin interning in the period from January 1 through March 31 (not covered by the program) and students who will not be interning for any one of a number of reasons.

This year's 6,713 participants appear to represent 97-99 per cent of those seniors who could be termed "eligible." This level has been maintained for several years.

The Table I column headed "per cent filled" shows an increase in the percentage of internships offered which are filled of from 56 per cent to 58 per cent. This increase occurs primarily because the total positions offered did not rise proportionally with the higher number of students available.

Probably the most significant figures in Table I concern unmatched students. Early in the history of the program a few students believed that there was some advantage in going unmatched, the illusion being created by the inevitable large number of unfilled positions each year and the intense scramble by many

TABLE IV
Hospital Rankings of Interns That They Were Matched With

Year	Per Cent Matched from Rank Group I	Per Cent Matched from Rank Group II	Per Cent Matched from Rank Group III	Per Cent Other	Total
1952	74	18	6	2	100
1954	71	21	6	2	100
1955	63	25	9	3	100

*Not counting the Puerto Rican hospitals.

hospitals for the unmatched students. Some students went unmatched intentionally.

In the 1955 student information document "The Student and the Matching Program," the disadvantage of going unmatched was stressed. The unmatched student has no chance whatever in the several hundred filled programs which are presumably the most highly desired and he might have been matched with one of these had he applied. The matching program works for the student if he will use it properly.

Another contributing factor to the total of unmatched students has been the high degree of localization of interest at some medical schools. Students from a given school, applying to the same small group of hospitals, sometimes compete so highly with each other that some of the students go unmatched.

For the first time this year the number of unmatched students dropped, going from 361 to 334. Considering the fact that there was an increase of over 300 participants in 1955, the proportionate drop in unmatched students is about 10 per cent. It appears that the students

are using the matching program more wisely.

There appears to be a marked trend toward greater usage of the feature of the matching rules that permits both student and hospital to express their preferences in their actual order, without regard to what they think of as their chances, and without loss of the opportunity to get a lower choice should the higher choice not be available. *Placing a highly desirable individual first on one's list never reduces chances of getting lower choices, should the highly desired choice not be available.* Each choice is independent. A student choice is cancelled only when another choice higher on his list becomes available.

This feature of the program, unique and highly desirable, is not an easy thing to describe. It is like having your cake and eating it—a rather infrequent situation! A good many participants in the past years—both students and hospital representatives—were frank to admit that they just did not think the matching operation could really work that way. Many probably behaved as if it did not and instead of putting all real

TABLE V
Students Matched Classified by Stipend Obtained

Amount of Stipend*	1953		1955	
	Number matched	Per Cent of total	Number matched	Per Cent of total
0 - 50	2101	37%	1376	21%
51 - 100	1672	29%	1876	29%
101 - 200	1275	22%	1827	29%
201 - up	107	2%	488	8%
No information	19	0%	257	4%
Federal services	570	10%	555	9%
Totals	5744	100%	6379	100%

*Based on cash stipend as reported by the AMA.

TABLE VI
Hospitals Classified by Percentage Filled (Degree of Success in Filling)
and the Total Number of Positions Being Offered (Relative Size)

Number sought	Per Cent Filled						Total
	100%	67 - 99%	50 - 66%	34 - 49%	1-33%	0%	
1 - 9	41	27	24	10	79	209	390
10 - 19	54	72	25	27	73	50	301
20 - 29	14	16	9	4	7	2	52
30 - 39	16	14	2	2	3	—	37
40 - 49	—	6	3	2	5	—	16
50 - up	8	9	1	—	—	—	18
Total	133	144	64	45	167	261	814

preferences on their list in the order in which they were actually desired, attempted to second-guess the game, by playing what appeared to be a sure bet and passing up chances for the highly desired and highly competitive. It cannot be pointed out too frequently that the second choice is always just as available in the matching—should the first choice not be available—as if it had been first.

Table II shows how the turning point in this attitude has been reached and passed. It shows the percentage of students who were matched with their first, second, third and higher choices each year. As the students use the program more, the proportion of lower choices matched will probably increase. In 1955 every medical school had at least one student matched to his third or later choice.

The Increasing Competition

With these "choice-matched" figures in mind, consider again Table I. In the four years, the number of positions offered has increased by 661. But in the same period the number of students matched has increased by 815. Assuming that the new and larger group of students hold the

same general preferences their predecessors did, the additional number probably increased the pressure on the more popular hospitals that usually fill in any case. This would account for some of the drop-off in student first choice matchings, for these heretofore popular institutions have not proportionately increased the positions they are offering. Hence more applicants per position, and more students having to settle for some other choice.

That flyers and more competition increase total applications made is almost axiomatic, and the 1955 figures in Table III show a rather sharp upswing. It is notable that there were 3.8 applications per student for Matching Program I, and the same number for Matching Program IV. Matching Program II showed a sharp dip to 3.2 per student. It may be recalled that for the first year's operation there was little known and published about the statistical likelihood of getting a first choice, or of how many choices were probably necessary in order to reasonably assure a position. Results of the first year's operation, widely published, showed clearly that 94 per cent got their first or second expressed choices. Since Matching Program II the aver-

TABLE VII
The Percentage of Interns Sought Who Were Obtained for Major Teaching Hospitals, Minor Teaching Hospitals, and Unaffiliated Hospitals*

Per Cent Filled	Major Teaching			Minor teaching			Nonaffiliated			Total	
	Hosp.	Sought	Matched	Hosp.	Sought	Matched	Hosp.	Sought	Matched	Hosp.	Sought
100%	46	1242	1242	20	581	581	67	868	868	133	2691
67 - 99	55	1909	1630	10	151	125	79	959	765	144	3019
50 - 66	14	373	213	5	70	38	45	511	283	64	954
34 - 49	9	225	90	4	62	25	32	389	157	45	534
1 - 33	18	290	62	20	230	46	129	1378	254	167	1898
None	7	45	0	20	145	0	234	1646	0	261	1837
Total	149	4084	3237	79	1240	815	586	5751	2327	814	11075
											6379

*Categories as indicated in Internship and Residency Number of the JAMA, September 1954. For matching program purposes, the Army, Navy, Air Force and Public Health Services are each treated as units and as unaffiliated.

TABLE VIII
Hospitals Classified by Stipend Offered and Percentage Filled

Stipend	100%			67 - 99%			50 - 66%			34 - 49%		
	Hosp.	Sought	Match.	Hosp.	Sought	Match.	Hosp.	Sought	Match.	Hosp.	Sought	Match.
1 - 25	6	171	171	15	573	484	1	44	27	1	32	11
26 - 50	10	243	243	13	363	309	4	91	48	5	125	53
51 - 75	23	540	540	17	489	406	5	68	36	5	70	29
76 - 100	20	336	336	16	315	283	8	115	67	9	126	51
101 - 150	25	306	306	35	579	483	13	226	125	15	219	87
151 - 200	20	222	222	24	324	254	21	272	150	8	78	31
201 - 250	14	102	192	12	125	96	8	77	44	1	16	6
251 - 300	8	92	92	3	19	15	1	20	13			
Not stated	5	76	76	7	190	159	2	17	10			
Total	128	2198	2198	142	2977	2489	63	930	520	44	666	268
Federal serv.	5	493	493	2	42	31	1	24	14	1	10	4
Grand total	133	2691	2691	144	3019	2520	64	954	534	45	676	272

Stipend	1 - 33%			0%			Total		
	Hosp.	Sought	Match.	Hosp.	Sought	Match.	Hosp.	Sought	Match.
1 - 25	2	52	14	1	5	26	877	707	
26 - 50	6	112	16	1	51	46	985	669	
51 - 75	14	264	43	24	247	85	1698	1074	
76 - 100	33	341	65	70	520	156	1753	802	
101 - 150	53	511	102	84	541	225	2382	1103	
151 - 200	36	380	67	43	280	152	1556	724	
201 - 250	11	105	22	17	97	63	612	360	
251 - 300	3	28	8	1	5	16	128	128	
Not stated	5	49	12	12	82	31	414	257	
Total	163	1842	349	260	1828	800	10441	5824	
Fed. serv.	4	56	13	1	9	14	634	555	
Grand Total	167	1898	362	261	1837	814	11075	6379	

Report of the 1955 Matching Program

age applications filed per student have increased to 3.4 and 3.8. This may well be accounted for by the increasing usage idea, for if one uses the program more, he probably makes more applications.

Table VI relates size of hospital to success in filling. No great changes are taking place relative to previous years*. Thirteen fewer hospitals were 100 per cent filled, some of these moving into the 67 per cent to 99 per cent-filled group which increased by 12. There were 23 less in the completely empty category. The in-betweens (1 per cent-33 per cent, 34-49 per cent, 50-60 per cent, and 68-69 per cent all increased). There was a drop of 29 among the smallest hospitals (offering 1-9 positions) who received no matched students. However, this group of hospitals constitutes 80 per cent of all hospitals receiving no matched students.

The number of students matched with hospitals filling 90 per cent or more, was for the first time taken for the 1955 group. Fifty-seven per cent of the students matched went to hospitals filling 90 per cent or more. The cluster effect of many students wanting the same hospitals, is thus still apparent.

Table VII compares major teaching** minor teaching and unaffiliated hospitals, based on degree of success in filling. This table has been prepared and published in previous years as well. Nonaffiliated hospitals filled 40 per cent of the positions they had open, minor teaching filled 66 per cent and major teaching filled 79 per cent. While the major teaching hospitals are the most popular, almost a

quarter of them obtained less than half the interns they sought. On the other hand, about a quarter of the nonaffiliated hospitals obtained two-thirds or more of the interns they were seeking.

This table also gives further indication of the "success" pattern among hospitals. Two hundred seventy-seven hospitals filled two-thirds or more of their positions. These included 81 per cent of the students matched. One hundred forty-six of these hospitals were unaffiliated. These 146 unaffiliated hospitals filled 1633 of the 1827 positions they offered, and used thereby 26 per cent of the entire matched group, with the 1827 positions offered being only 16 per cent of the total number of positions offered nationally.

Table VIII relates stipend to degree of success in filling in 1955—a more elaborate form of Table V. Comparison with the figures of previous years shows a definite trend upwards in stipends offered. However, about 80 per cent of the total number matched in 1955 went to hospitals offering \$100 a month or less in cash stipend.

The Matching Program is becoming better understood and therefore more accepted. The cooperative efforts of students, hospitals, the AMA and the deans through the AAMC have developed the program, and the continued support of the SAMA, the AMA, the Hospital Associations and the AAMC makes it possible for the program to work efficiently.

The matching was not conceived by its directors as a solution to the internship problem or as a panacea. It provides an orderly method for intern placement, and encourages sound principles and practices in guidance and in selection on the part of both hospital and student. Decisions can be reached away from the pressures of

*See "The Third Year of Operation of NIMP," *J. Med. Educ.*, August 1954.

**As indicated in the Internship and Residency Number of JAMA, September 1954.

the salesman. Both student and hospital preferences are considered in reaching the fairest decision possible.

The choice-you-were-matched with figures for hospitals (Table IV), show the same kind of development taking place, as with students. Hospital rankings are expressed for purposes of this table only by groups as follows: If a hospital offers five positions, the students they ranked as 1, 2, 3, 4 and 5 are in this table only, called "Rank Group I." Those ranked as six through ten would be Rank Group II, and those ranked 11 through 15, Rank Group III. No such grouping is used in the matching, applicants being arranged in actual numerical order according to the rank order given by the hospital.

It will be seen in Table IV that the per cent matched from rank group I has dropped noticeably, much as parallel student figures on first choices have. The loss is to Rank Group II and III. Some of this drop is probably accounted for by increased understanding and usage, just as with students, with more hospitals heading their lists with individuals with whom their chances

are poor, but taking advantage of the protective features of the matching in this respect.

Another aspect of the increasing competition is seen in an analysis of stipends offered to matched students. Table V compares the figures for 1953 with those for 1955. Even in the two-year interval the changes are noticeable. There has been a drop of 16 per cent in the proportion of the students matched with hospitals paying \$50 or less and an increase of 6 per cent in the proportion of the students matched with hospitals paying \$200.

The Matching Program provides a source of accurate up-to-date statistics on what is happening.

The pleasant cooperation of hospitals, students and deans, as well as that of the associations which have joined together to create this program, is gratefully acknowledged. With such continued cooperation, the matching programs should be able to serve effectively both students and hospitals and permit major attention of both groups to be placed where it properly belongs, to the educational aspects of the internship.

Editorials and Comments

Our Readers Write

Dear Editor:

In answer to your letter asking for a brief statement regarding the aims of the current clinical teaching program at Cornell Medical College, I am glad to present a statement which we prepared here February 18, 1952:

"Teaching at Cornell University Medical College is aimed at providing carefully selected students with the broad principles of medical art and science. By graduation they are expected to be well-educated men who have developed the potentiality of becoming wise. To this end they are taught a method and a point of view that will allow them to approach any clinical problem with confidence. The scientific method is emphasized together with the acquisition of a few specific technical skills. Quality of accomplishment is the ideal. Specialties are taught only to demonstrate the effect of particular illnesses and procedures on the individual and on his family and not to make a specialist of the student. He is expected rather to learn the fundamentals of medicine and to become imbued with the spirit of continuing inquiry so that he will become a leader in whatever career in medicine he may choose.

"The methods used in achieving these aims include didactic teaching, example and experience. But reliance on explicit and didactic teaching alone has been said to be educational bankruptcy, so that the largest influences in clinical teaching are the examples set by the physicians with whom the student comes into contact in his daily work and his experiences in helping to care for patients.

"Since his teachers' attitudes are so important in molding the student, it is essential that they recognize this responsibility. In every clinical exercise they must demonstrate the care, seriousness, objectivity, sympathy, integrity and other attributes that they wish to inculcate in the student. They should avoid indicating a preference for one type of patient over another, by classifying patients as "interesting" or "crocks," for example, but should recognize each patient as a human being continually reacting to internal and external stresses and, as such, a unique and challenging clinical problem. If the instruction is successful, it may be expected to create certain attitudes in the student: respect for careful collection and evaluation of data, ability to impart to a patient a willingness to help, a sense of complete and continuing responsibility for patients, sympathy without overidentification, an objective weighing of patients' problems without moral judgment and a seriousness of purpose and an inquiring mind so that learning will be a continuing process.

"The experience which the student undergoes during his clinical training should be selected to provide him with adequate variety so that he

will be able to recognize the common disease entities and understand the routine management of frequently encountered conditions. Like the good soldier who loads and fires automatically in the heat of battle, the student should be sufficiently well-drilled in the fundamental routines of diagnosis and treatment that conscious effort is not required to recall the proper pattern of approach in a clinical emergency. For the student to become experienced in the techniques of observation he must be provided with adequate knowledge of the normal and the deviations from it occasioned by disease. Thorough knowledge of the standard descriptions of disease should be required as well as an acquaintance with pertinent original literature. Equally important is it for the student to learn to collect data relevant to the problem presented by the patient, whether physical, psychological, sociological or environmental. He should be taught how to sift and weigh the various types of evidence to arrive at a diagnosis and a plan of management; and exercises in case presentation and in differential diagnosis are essential to the sifting and weighing process. The student who presents a case well, and formulates the problem logically, has a good start toward becoming an effective physician.

"Didactic teaching cannot be discarded but in general should take the form of the seminar rather than the lecture. Because the amount of knowledge each student has varies, the clinical instructor should use the Socratic method by preference, delimiting the area of the student's ignorance before attempting to fill the gaps.

"Participation of senior members of the faculty in all parts of the teaching is essential because of the emphasis their presence lends to the subject matter. This is particularly true in regard to teaching on ambulatory patients.

"Physicians with psychiatric orientation should also be intimately associated with general clinical teaching to help the student to understand all his patients better and to recognize the total problem each presents. They should try to give the student insight into himself and his motivations when dealing with patients. The student should recognize the tendency to project his own conflicts into the patient's difficulties and to identify the patient's problems with his own. He should also have some knowledge of the psychotherapeutic effects of his activities in behalf of patients.

"Because medicine is too complicated today to be practiced in its entirety by one individual the student must learn to work with consultants, nurses, social service workers, administrative personnel and public agencies. He should know the kinds of jobs these people can do and should learn how to direct their special skills to the patient's advantage. In his relations with patients he should always serve as a physician. Even though a neophyte and under close supervision he should be learning the art of caring for patients. He should not assume the role of social investigator except as the physician does that job, nor should he be a psychologist except as the physician is a good practical psychologist. The broader aspects of medico-legal problems, medical economics, preventive medicine, rehabilitation, social responsibility and good citizenship should occupy a position of importance in his training, relating naturally to patient care.

"Students learn most quickly when given responsibility and placed in a position where they must make their own decisions. As early as pos-

sible, therefore, they should be permitted to assume responsibility for appropriate portions of patient management. They should be working members of the medical-care team, but prior to graduation they should not be expected to make therapeutic decisions nor to administer treatments without review by qualified instructors. To encourage students to make decisions for themselves the instructor should require them to formulate problems completely before offering comments. For the same reason students should go into the homes of patients where situations may test them apart from the ubiquitous instructor.

"Another and equally important reason for a student's going into the home is to give him a fuller understanding of the environment in which the patient resides and the interrelations of the patient with the relatives and associates. The student should learn the responsibilities and privileges of the family physician and the role the community expects him to play. These can best be learned by giving him continuing responsibility for individuals in family groups but with supervision adequate to protect the patients.

"The comprehensive care and teaching program is meant to serve as a culmination of the student's medical school training and as an exercise in synthesis of the many disciplines to which he has been exposed. The ideals of purpose and method previously noted may be here expected to reach their epitome. The student will have continuing responsibility for patients whether they are ill at home, in the clinic, or in the hospital, appropriate supervision being given at each point. Preventive and social aspects of medicine will be stressed as integral parts of total patient management, relevant to the understanding of the clinical problem. As a result of this training it may be hoped that future Cornell graduates in medicine will more closely approach the ideal of the good physician." George G. Reader, M.D.

Extension of MEND

Dear Editor:

The impelling need for preparedness to cope with the medical problems which result from mass disasters is selfevident. That the responsible government agencies, in conjunction with the Association of American Medical Colleges, have recognized this need is apparent from the MEND program which was initiated in 1951 "as a means of teaching military and civilian personnel in disaster medicine." The scope of MEND (Medical Education for National Defense) has been amply detailed previously by Olson (*J. Med. Educ.*, Vol. 29, No. 1, January 1954; *Ibid.*, Vol. 29, No. 12, December 1954) and need not be repeated here. Despite its great importance, however, formal MEND activity is still limited to the five medical schools which participated in the pilot phase of the program.* The badly-needed extension of MEND to all other medical schools appears to have encountered serious obstacles which are primarily financial (*J. Med. Educ.*, Vol. 29, No. 10, October 1954). Indeed, it seems evident at this time that some alternate plan for the support of MEND will be necessary in order to bring about full implementation of the program.

*Editor's note. The program now includes 15 schools and plans call for extension to 10 more schools in the latter half of the 1956-1957 year.

The purpose of this communication is to set forth a proposal which, it is believed, would overcome many of the present difficulties.

Briefly, it is proposed that MEND be incorporated and organized within the structure of the Medical Reserve Program of the U. S. Armed Forces.

Authority. The Army is more intimately concerned with the problems of mass ground casualties, which are of common interest to both military and civilian medicine. For this reason, it is suggested that the Army Medical Corps be responsible for the program, but with assistance from the sister services. Immediate supervision would be the responsibility of the education and training division of the Office of the Surgeon General. An additional reason for suggesting the Army as the responsible agency is that the majority of reservists who are to carry the teaching burden (see below) belong to this branch of service.

Teaching Participants. Many physicians who have had extensive military experience during World War II and the Korean conflict are now faculty members at the various medical schools. It is probable that every medical school has at least several men on its faculty who are qualified to participate in the MEND program. Many of these are members of the organized Medical Reserve Corps. Others are inactive reservists or have given up their commissions through lack of an appropriate reserve program at their respective institutions or communities. From such qualified men already on the staff, the MEND coordinator and assistants could readily be chosen. Selection would be handled by the deans or the executive committees, or both, in cooperation with the appropriate reserve corps authority. It is estimated that three individuals per school would be sufficient to perform the necessary duties of the program. The participants would, of course, resume an active reserve status if not already so.

Compensation. The MEND participants should be compensated as are other instructors in reservist functions. They should receive retirement credits, accrue satisfactory "retirement years," and paid meetings on the same basis as is practiced for other reserve components in the same area.

Summer Training. Active reservists are now required to undergo training exercises at summer encampments. For the participants of the MEND program, however, this should consist of a special two-week indoctrination course designed to bring them up to date on the problems, needs, techniques and advances in pertinent areas of medicine. This course would be most appropriately given by and at the Army Medical School in Washington, D. C., and should be given annually.

Cost. Under this proposal, MEND would be conducted by faculty members who also belong to the Medical Reserve Corps of one of the Armed Services. The cost, therefore, would not result in any increase in the Defense Department budget. Instead, the program would be implemented by re-assignment of duties of a small fraction of the reservist personnel. To be sure, some additional reservists will need to be activated in certain medical schools, but this is also desirable in view of the current national effort to place increasing emphasis on the reserve forces program.

"Some provision should be made to provide travel funds for occasional guest speakers and training aids. It seems reasonable to assume that

\$1,000 per institution yearly would be ample for these purposes. Thus, all of the nation's medical schools could participate at a cost no greater than that which is at present incurred by the program in only five medical schools."

It is believed that this proposal overcomes the major obstacles to an effective MEND program. First of all, it places responsibility for implementation where it belongs, namely, in the Office of Defense. As has been noted editorially (*J. Med. Educ.*, Vol. 42, No. 10, October 1954), "Only the Armed Forces have access to classified material, instructors and facilities to provide the basic orientation and instruction of medical college teachers and coordinators. This cannot be effectively delegated to any other agency of the government."

Secondly, there is no added cost to the Defense Department budget, since its medical school participants are to be Medical Corps Reservists diverted from other functions to this program. It is estimated that about 200 reserve officers could conduct the entire program in all of the nation's medical schools. Their function will be to indoctrinate some 20,000 medical students almost all of whom will eventually enter into military service. Such an effective utilization of reservist personnel can hardly require further justification in the over-all reserve program of the Defense Department.

Finally, the Office of Defense has been quoted as opposed to giving further financial support to schools to help them "do what they ought to be doing anyway." (*J. Med. Educ.*, Vol. 29, No. 10, October 1954). Certainly no single institution, or association of institutions, is in position to assume the responsibility for a program which depends almost entirely on military indoctrination and organization. The Defense Department cannot forfeit its civilian obligations in this matter. Under this proposal, these obligations can be met without neglect of its primary military mission. At the same time, the various medical schools can do much to aid in this program. They should agree to an incorporation of MEND activity in their respective institutions and encourage faculty members to participate in the program.

Thus, a proposal is offered whereby MEND would be incorporated and organized within the structure of the Medical Reserve Program of the Armed Services. It has been pointed out that such an arrangement offers means whereby the principal obstacles which confront the current program may be overcome. It is believed that this proposal merits serious consideration by the Office of Defense and the Association of American Medical Colleges. *Chris J. D. Zarafonetis, M.D.*, clinical professor of medicine, Temple University School of Medicine and Hospital.

The Centennial of Five Mental Hospitals

The May 1955 issue of the American Psychiatric Association's journal, *Mental Hospitals*, is dedicated to the five mental hospitals that opened their doors in 1855. The five include St. Elizabeth's hospital in Washington, D. C., Dayton State hospital in Ohio, Mississippi State hospital at Jackson, Cleveland State hospital in Ohio and Brigham Hall in Canandaigua, N. Y.

This centennial issue is of interest in that it consists almost entirely of articles and excerpts of articles published about the year 1855. The mental treatment of that time was turning away from the physical approach advocated by Benjamin Rush and favoring the "moral treatment," i.e., appealing to the emotions of mental patients and influencing them with kindness and understanding rather than regimenting them. In the words of the day, "The character of the moral management is activity without excitement, progress and the combination of selfgovernment with appeals to the intellect and sentiments."

Dorothea Lynde Dix of Boston is definitely credited with drafting the act and obtaining the original appropriation of \$100,000 from Congress for the erection of St. Elizabeth's hospital under the title of The Government Hospital for the Insane. In that year of 1855 there were only 33 public institutions for the insane and of these, the indefatigable Miss Dix had been responsible for the establishment of no less than 15 in the years between 1840 and 1855.

The editor of this centennial issue, Dr. Winfred Overholser, fifth superintendent of St. Elizabeth's hospital, points to the many advances that have been made since 1855 in electro-shock therapy, narcoanalysis, group psychotherapy, neurological surgery, the conquest of general paresis, the treatment of involutional melancholia, the understanding of mental mechanisms through the contributions of Freud, Jung, Adler, Horney, Sullivan, Myer and White.

Despite all these advances he finds in 1955 over 700,000 patients in our mental hospitals, "much of the stigma and superstition regarding mental illness still persisting;" schizophrenia, which accounts for nearly half of all mental hospital patients "still remaining an unsolved problem."

And what does Dr. Overholser see as the most likely accomplishments of the next hundred years? He predicts increased research and greatly increased application of existing knowledge; augmented financial support from the public; increased interest of the medical profession in mental ailments; great progress in the prevention and treatment of alcoholism; progress in the care of oldsters with only minor mental symptoms; a beginning of the understanding of schizophrenia; development of briefer forms of psycho-therapy; the rapid development of group therapy; the development of drugs as useful adjuncts; increased care of mental patients in general hospitals; day hospitals and perhaps night hospitals may replace to some extent 24-hour care; the hospital stay of patients will be shorter; a greatly increased number of clinics and general recognition of the fact that the mental patient needs most of all the respect of others and the respect of himself.—D.F.S.

Revised Indirect Costs Allowance

In an office memorandum dated July 12, 1955, C. A. Lowe, administrative officer of the division of research grants of the Public Health Service, announced that the indirect costs allowable on all P.H.S. research grants, beginning July 1, 1955 or later, have been increased from 8 per cent to 15 per cent, based on actual expenditures as reported.

In a note of explanation of this revised policy, the following summarizing statement is made:

"Indirect costs may now be requested at rates up to 15 per cent

of direct operating costs, but will be adjusted at the time of final accounting as follows: (1) The actual amount to be claimed as "indirect costs" must be computed on *actual* expenditures; (2) Indirect costs will not be allowed on expenditures for hospital beds when such costs were originally computed to include indirect costs and (3) The indirect cost allowance on an item of equipment having a unit cost in excess of \$2,500 is limited to \$375 (15 per cent of \$2,500).

To those medical schools carrying on an active research program and assuming thereby a heavy load of indirect costs, this will be welcome news indeed since a number of studies have shown that the previous 8 per cent overhead allowance was quite inadequate to cover the actual costs to the institution in sponsoring housing and accounting for P.H.S. research projects. D.F.S.

"They Also Serve"

The book companies, pharmaceutical houses, instrument and equipment makers and manufacturers of the thousands of items essential to the functioning of our medical schools and teaching hospitals command respect as successful business institutions. But they too often receive scant recognition as partners with the medical schools in the all-important tasks of training more and better doctors and of developing new and more effective methods of preventing and curing disease.

With this partnership in mind, the Journal will carry henceforth on its Index to Advertisers page a thumbnail sketch of one of those companies which is making a significant contribution to medical education and research. Under the title "*Aei Quoque Auxilio Sunt*" our readers will, we hope, find facts about these companies that will be of real interest and value. D.F.S.

NEWS DIGEST

MEND NEWS

The Medical Education for National Defense Committee was formed in 1951-52 as a subcommittee of the Joint Committee on Medical Education in Time of National Emergency. At that time, the medical ROTC had begun to fail in popularity with medical students, and in the opinion of many faculty members, it was consistently failing to realize its objective of serving as an effective means of communication between military medical officers and faculties of medicine.

Anticipating that medical ROTC soon would be discontinued, the joint committee increased its concern with the problems of medical education in the face of the war in Korea, having many recollections of unpleasant experiences with V-12 and ASTP units in medical colleges during World War II.

Meanwhile, the AAMC's executive council had appointed a subcommittee, later known as the MEND committee, to study this problem and to develop recommendations regarding supplementation of curricula in order to prepare the medical graduate for military or civilian disaster medical service in time of national emergency. A set of recommendations was drawn up and approved by the joint committee and by the AAMC Executive Council. These recommendations were published in *J.A.M.A.* 145: 1288, April 1951.

The MEND committee then recommended that a series of pilot studies on this problem of curriculum implementation be held at a group of medical schools representative of the total group of 81 throughout the country. The schools selected were

Buffalo, California, S.F., Cornell, Illinois and Vanderbilt.

A committee then was set up with Stanley B. Olson as chairman, and consisting of George V. Byfield, Stockton Kimball, John Lagen and John B. Youmans, plus representatives of the Surgeons General of the Army, Navy, Air Force, Public Health Service and Federal Civil Defense Administration. The committee proceeded on the following set of principles: (1) the content of the program must put emphasis on medical rather than on military principles; (2) the individual faculty must always be free to accept or reject any part of the program not consistent with its own philosophy of medical education and (3) there should be modest financial support for a part-time local coordinator, for teaching materials and for support of faculty travel to MEND-sponsored symposia and to military research-teaching installations.

The success of the five pilot programs was reported by Stanley B. Olson in the January 1954 issue of the *Journal*. One can see from this paper that the principle of individual faculty interpretation has been maintained. Response to the program by the military services has been enthusiastic. The several surgeons general as well as the assistant secretary (health and defense) of the Department of Defense have continued to give strong support and defense to the MEND committee.

As a result of widespread general approval, MEND has extended its affiliation to the following colleges of medicine: Baylor, Colorado, Emory, Georgetown, Medical College of Virginia, Ohio State, Pennsylvania, Seattle, Tufts, Washington and Wisconsin. Further expansion to 10 more

schools will be arranged this year.

MEND-sponsored activities for 1955-56 will include a three day symposium on aviation physiology and medicine conducted by the Air Force at Randolph Field School of Aviation Medicine in early October. Other symposia are planned on the surgery of trauma, infectious diseases, hypothermia and chemical, biological and radiological warfare defense. Arrangements are being made for faculty members to travel to military research laboratories active in different fields of study.

As the program grew in size and complexity, the need for full-time attention became evident. It was arranged by the Federal services that Dr. James R. Schofield, assistant dean at Baylor, should take a leave of absence to serve as national coordinator for the MEND committee. National offices have been established at the Bureau of Medicine and Surgery, Potomac Annex, Department of the Navy, Washington, D.C., and all inquiries or correspondence related to MEND affairs can be routed through this address.

Specific activities of MEND-affiliated colleges will henceforth be reported regularly in the pages of the *Journal of MEDICAL EDUCATION*.

ACPRA Meeting

The financial problem facing America's medical schools was one subject of discussion at a panel meeting during the 39th convention of the American College Public Relations Association, held in Chicago June 29-July 2. Participating in the discussion were representatives of the Association of American Medical Colleges, the American Medical Education Foundation and the National Fund for Medical Education. It was decided to set up a coordinating committee to look into the NFME's proposal to establish a nation-wide Medical Education Week for fund-raising purposes.

This panel was one of four sponsored by the Medical Section of ACPRA during the convention. The

first dealt with the Internal Organization of Public Relations Offices, another with Public Relations in Medicine—Past, Present and Future, and the third with Television and Medical Education. Specialists in communications, public relations and fund-raising were on hand to share their views with representatives from medical schools, universities and civic organizations.

A membership meeting of the ACPRA Medical Affairs Section elected a new board of governors, with Mrs. Elizabeth S. Griffin of NYU-Bellevue as chairman. The board members are Joseph Adams, Oregon; Albert Boeck, NYU-Syracuse; Thomas Coleman, Pittsburgh; Evan Edwards, Colorado; Joseph B. Kelly, Johns Hopkins, and Milton Murray, College of Medical Evangelists.

Atomic Medicine Tour

A 37-day tour of America to study the medical applications of atomic energy has just been completed by a group of 25 doctors and surgeons from Europe, Asia and the Americas. The doctors, representing 12 different nations, were guests of the State Department, the Atomic Energy Commission and the Leaders Program of the American Council on Education.

The visiting physicians inspected American hospitals, research centers, universities and Atomic Energy Commission installations. They studied the use of isotopes, reactors and other atomic devices and techniques in medicine, with emphasis on their application to research and treatment in the field of cancer. Opportunity was provided to meet with U.S. doctors and research workers for further exchange of information and ideas.

The tour was part of President Eisenhower's "Atoms for Peace" program, and included representatives from Australia, Brazil, Denmark, Egypt, England, France, Italy, Japan, the Philippines, Portugal, Spain and Turkey.

College Briefs

Arkansas

Dr. F. DOUGLAS LAWRASON has been appointed acting dean and provost for medical affairs, effective August 1. Dr. Lawrason was formerly assistant dean and assistant professor of medicine at North Carolina School of Medicine.

As part of his new duties, Dr. Lawrason will act as chief administrative officer of the new university health center. This center, now being completed, consists of a 500-bed hospital with schools of medicine, nursing and pharmacy.

Boston

Dr. CHESTER SCOTT KEEFER has been appointed director of the school of medicine, a new post which combines the administrative functions of dean with responsibility for coordinating the school's educational program with the services of Massachusetts Memorial hospitals. Dr. Keefer's appointment became effective on July 1, when Dr. JAMES M. FAULKNER, the former dean, assumed his new post as medical director of the Massachusetts Institute of Technology.

Dr. JOHN D. IFFT, assistant professor of anatomy, has been awarded a three-year grant by the National Science Foundation to continue his study of the effect of the pituitary gland on the sexual cycle of animals. Dr. Ifft began working on this project in 1954, under grants from the National Research Council.

U.C.L.A.

More than \$600,000 has already been raised in the drive for funds to build a new classroom and laboratory building for the basic sciences. The building, which will cost an estimated \$1,500,000, is part of a proposed \$5,500,000 medical center.

When completed, the new center will include another basic science unit, a student commons, a library and an auditorium. Contributions averaging \$1,000 each have been pledged by faculty, alumni and students to raise funds for the new building, which will consolidate all medical instruction on one campus. A medical research building has already been constructed on the 10-acre site.

Emory

A two-year grant of \$100,000 for the continuation and development of research already under way in burns and in blood diseases has been made by the John A. Hartford Foundation, Inc. The research will be directed by CHARLES M. HUGULEY Jr., assistant professor of medicine, and Dr. J. D. MARTIN Jr., clinical professor of surgery.

Florida

Dr. JAMES G. WILSON, professor of anatomy at the University of Cincinnati, has been appointed head of the anatomy department, effective September 1. Dr. Wilson was formerly at the University of Rochester, where he served for three years as section head of embryology in the university's atomic energy project.

Kansas

The new chairman of the department of pharmacology is Dr. LAWRENCE PETERS, formerly of Tulane, who was appointed professor and head of the department effective July 1.

The rank of clinical professor emeritus was conferred upon Dr. HUGH L. DWYER, clinical professor of pediatrics and preventive medicine, and Dr. LAVERNE B. SPAKE,

clinical professor of otorhinolaryngology and chairman of the hearing and speech department.

An honorary doctor of science degree was conferred upon Dr. FRANKLIN D. MURPHY, chancellor of the university and former dean of the school of medicine, by the University of Pennsylvania on June 15. Dr. Murphy, a graduate of Pennsylvania, delivered the commencement address.

Dr. THOMAS GROVER ORR, professor emeritus of surgery, received an honorary doctor of science degree from the University of Missouri at the commencement exercises on June 8.

Northwestern

Memorial services were held on July 8 for the late Dr. HARVEY S. ALLEN, who was professor of surgery when he died on May 30.

Five promotions to the rank of full professor have been announced: Dr. WILLIAM BAKER, professor of urology; Dr. JOHN DORSEY, professor of surgery; Dr. BENJAMIN KAGAN, professor of pediatrics; Dr. GEORGE K. YACORZYNSKI, professor of neurology and psychiatry, and Dr. SAMUEL J. ZAKON, professor of dermatology.

Dr. EUGENE L. HESS and Dr. HUTTON L. SLADE, research associates of the Rheumatic Fever Institute, were awarded \$27,000 by the Public Health Service to study streptococcus hemolyticus and its role in causing rheumatic fever. Another institute associate, Dr. RICHARD SCHAYER, received \$15,000 to study allergy and inflammation in rheumatic fever. Awards to other members of the medical faculty brought the total to \$77,000.

The Royal College of Surgeons of England has awarded an honorary fellowship to Dr. LOYAL DAVIS, chairman of the department of surgery.

Ohio State

Dr. CHAUNCEY D. LEAKE has been appointed professor of pharmacology and assistant dean of the college of medicine, effective September 1. Dr. Leake is presently executive director

of the University of Texas Medical Branch at Galveston. He will succeed Dr. JOHN A. PRIOR, who will continue as professor of medicine and director of the division of chest diseases in the department of medicine.

Oregon

A grant of \$15,000 has been received from the International Minerals and Chemical Corporation in the departments of biochemistry and psychiatry. This is the largest of several gifts totalling more than \$30,000, which have been received since June 1.

Included among the new faculty members appointed this spring and summer are Dr. WILLIAM R. HASS, assistant clinical professor in medicine; Dr. SHELDON A. WALKER, associate professor in dermatology and syphilology; Dr. EGGERT T. FELDSTAD, assistant professor in radiology; Dr. ROBERT L. BACON, associate professor in anatomy and Dr. DAVID L. GUMBER, assistant professor in anatomy.

Pennsylvania

Dr. IRVING H. LEOPOLD has been appointed chairman of the department of ophthalmology, effective July 1. He succeeds Dr. EDMUND B. SPAETH, who will continue to teach in the department. Dr. Leopold has been on the faculty since 1946, and has been director of research at Wills Eye hospital, Philadelphia, since 1949.

Col. TOM F. WHAYNE, M.D. (USAMC) has been appointed professor of public health and preventive medicine, effective July 1, following his retirement from the Army. Colonel Whayne served as chief of preventive medicine for the 12th U.S. Army Corps during the war in Europe. His most recent assignment was as chief of the division of preventive medicine, office of the surgeon general.

The new director of the Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis is Dr. JULIUS LANE WILSON.

Audiovisual News

Films Added to Library

Four films in anatomy have recently been added to the film library of the Medical Audio-Visual Institute. All were presented to the library on indefinite loan; three from the National Foundation for Infantile Paralysis and one from Pfizer Laboratories. The charge of \$2 for each film covers the cost of handling.

Other films held by MAVI were previously listed in the Journal (April 1955 and June 1955.)

The Autonomic Nervous System (Reels I and II).....\$2
39 min., sd., color, 16 mm., 1952.

This film covers in concentrated detail the fundamental structural and functional aspects of parasympathetic and sympathetic nervous systems in man by means of animated diagrams and gross dissections. (Instruction booklet with film.)

Sponsor: National Foundation for Infantile Paralysis; Author-Producers: Joe E. Markee, Ph.D., and R. F. Becker, Ph.D., Duke University School of Medicine.

The Bronchopulmonary Segments (Part I—Anatomy and Bronchoscopy).....\$2
31 min., sd., color, 16 mm., 1955.

The lung segments are related to the bronchial tree in models and casts, and the embryology of the segments is shown in brief animation. Air inflation and dye injection of bronchi in fresh specimens demonstrate the bronchopulmonary segments. Using the Jackson-Huber classification, the segments are identified in a model, and, in another model, related to the bronchial orifices as seen in bronchoscopy. Bronchoscopy in a patient is shown by motion pictures of the larynx, trachea and bronchi and each visible segmental orifice is identified in stop motion.

Sponsor: Pfizer Laboratories; Authors: Chevalier L. Jackson, M.D., John Frank-

lin Huber, M.D., and Charles M. Norris, M.D., Temple University School of Medicine and Hospital, Philadelphia; Producers: Campus Film Productions, with Leo L. Leveridge, M.D., Medical Film Department, Pfizer Laboratories.

Functional Anatomy of the Hand.....\$2
40 min., sd., color, 16 mm., 1951.

Functional analysis of muscular structure of hand and forearm. Uses wired model of human hand to illustrate movement and animation to show the placement and action of various muscles. (Printed script accompanies film.)

Sponsor: National Foundation for Infantile Paralysis; Author-Producers: Joe E. Markee, Ph.D., and D. L. Eyler, Department of Anatomy, Duke University School of Medicine.

NERVE BLOCKS AND NERVE LESIONS (Series)

4 reels, 38 min., sd., color, 16 mm.

Sponsor: National Foundation for Infantile Paralysis; Author-Producers: Department of Anatomy, Duke University School of Medicine.

Double Nerve Blocks (Reel IV) (7 min.)..\$2

A study of the activities of the hand after the following double nerve blocks and lesions: high radial-high ulnar, high median-high radial, low median-low ulnar, and high median-high ulnar.

The Median Nerve (Reel II) (9 min.).....\$2

Film begins with a review of the branches of this nerve to the muscles as demonstrated by projection of the nerve on the skin of the forearm and hand, and a dissection of these nerve branches. The remainder deals with the alterations in function in (1) subjects in which the nerve has been blocked at the level of the elbow and at the level of the wrist and (2) patients with a low median nerve palsy resulting from trauma in the mid-forearm.

The Radial Nerve (Reel I) (12 min.).....\$2

Film begins with a short introduction of the entire film, followed by short section illustrating the tests of the activities of the normal hand. The branches of this nerve to the muscles are shown first by projection of the nerve on the arm, and second by demonstrations of dissections. The remainder of the film demonstrates the altered activity of the hands of subjects in which the radial nerve has been blocked and of patients with lesions of the radial nerve.

The Ulnar Nerve (Reel III) (10 min.).....\$2

Contains a review of the branches of this nerve, demonstrated by projection on the skin and by dissections of the hand. Alterations in function are illustrated in (1) patients in which the nerve has been paralyzed by a lesion above the elbow and at the wrist and (2) a subject in which xylocaine is injected around the ulnar nerve just above the wrist.

Projectionist's Manual

A projectionist's manual, prepared by the Bureau of Navy Personnel, is now available. It is designed to give hints for the projectionist in operating, utilizing and maintaining projection aids. The manual is available from U. S. Government Printing Office, Division of Public Documents, Washington 25, D. C., Catalog No. D208.6:P94, 65c.

B.P.A.'s 25th Anniversary

The Biological Photographic Association celebrates its 25th anniversary this year. The anniversary convention will be held in Milwaukee, August 30-September 2, during the 75th anniversary of Marquette University. Leo C. Massopust Sr. of Marquette University School of Medicine is convention chairman.

"Professional Films" List

A completely revised fourth edition of "Professional Films" is now in compilation. The frequency and number of future insert pages necessary to assure a comprehensive index that is continuously current over a period of years will be determined by the volume of forthcoming productions. It will include new sections providing biographical data on

authors, and information on the audiovisual activities of medical schools, dental schools and postgraduate teaching centers.

Over 28,000 copies of previous editions are in use by medical and dental schools, program chairman of state and specialty societies, and others here and abroad.

Further information is available from the Academy-International of Medicine, 601 Louisiana St., Lawrence, Kan.

Summaries of Film Reviews

Which Fate

20 min., sd., color, 16 mm., 1955.

A prologue of police shooting a stray dog prepares for an introduction of contrasting dogs as pets or workers and dogs as hungry and homeless strays. A dogcatcher traps a mongrel and takes him to the shelter for destruction and cremation. In a medical center, medical students learn physiology with the aid of dog experiments. The scientist, a teacher of pharmacology and a warm human who own his own pet dog, states the simple issue: Which fate?—meaningless destruction, or a contribution to life and health. Dog experiments are shown to be the basis of a large segment of biological research. Doctor, veterinarian, housewife, crippled veteran and average men voice their views of support for animal experimentation.

This film presents succinctly the case for dog experiments in medical research, e.g., waste vs. humanitarian progress. It dispels many of the protests of antivivisectionists, and shows the great benefits of such experimentation to both man and animals. Production is adequate for the purposes of the film, the narration is particularly telling and pungent in spots.

For the education of medical students and for showings to laymen involved with certain crackpot antivivisectionists, the film is calculated to portray visually the true issues concerning dogs used for medical research. The film has a highly specific purpose, and timing in its use is critical. Associated material is available from the sponsor, D.S.R. with K.U.M.C. Panel, June 1955.

Audience: Lay audiences concerned with antivivisection campaigns, medical students.

Production Data: Sponsor: National Society for Medical Research, Chicago, Ill.; **Producer:** Scientific Film Company, Inc., Chicago, Ill.
Distribution: National Society for Medical Research, 200 N. Wells St., Chicago 6, Ill.
Sale: \$305.

Movements of the Tongue in Speech

14 min., color, sd., 16 mm., 1944.

A patient with a radical surgical defect of the right cheek (maxilla) is used as subject for enunciation of English language sounds, following after the words of the commentator. Vowels made at the front of the mouth cavity (Group A), towards the back of the mouth cavity (Group B), in the middle region (Group C), diphthongs (Group D), and adjacent vowels in consecutive syllables (Group E) are demonstrated. Consonants are briefly run through. Fourteen short sentences are pronounced.

This film utilizes a postsurgical case to demonstrate the physiology of English speech at regular and slow motion camera speeds. Unfortunately, the camera position is a fixed one, and, since the movements are often complex, there is often inadequate visual analysis of motions seen. The British accent is slightly obstructive, and only speech experts can appraise the effect of the surgical mutilation. However, the film structure is simple; repetitions of movements are the rule; picture clarity and color are good. All told, speech therapists can, with study and backward-forward use of a projector, focus upon the pertinent movement, exclude the insignificant ones and organize the visual data in their own teaching terms.

For students of speech, the film is most informative and revealing, as teaching and as study aid. Some patients with similar or related defects may benefit from study of the film. *D.S.R. and K.U.M.C. Panel, July 1954.*

Audience: Students of speech and speech therapy.

Production Data: Sponsor: Imperial Chemical Industries; **Scientific Adviser:** D. B. Fry; **Production:** Realist Film Unit.
Distribution: Film Library, Imperial Chemical Industries (N. Y.) Ltd., 521 Fifth Ave., New York 17. **Loan.**

Fractures about the Elbow

30 min., color, sd., 16 mm., 1954.

The anatomy and functions of the elbow joint are pictured, stressing angles of strain and lines of force, the muscles which lever the bones and the nerves and vessels passing through the joint area. A young girl falling upon her right hand produces a supracondylar fracture; diagnosis and reduction are shown first in animation, then on the patient. Intercondylar fracture, fracture of the olecranon, simple and comminuted fracture of the head of the radius are each shown in animation followed by management on patients. The range of anatomy and pathology is reviewed for the fractures shown.

This film presents in direct, accurate and fundamental fashion the principles and handling of fractures about the elbow. The straightforward simplicity of presentation of the causation, diagnosis and handling of typical cases has a certain deceptiveness regarding the difficulties surrounding fractures in real life, but this simplicity nevertheless is a gain in teaching. Production is smooth, beautiful and thoroughly competent throughout the film, and is equal to any of the films of this excellent series.

For medical students in anatomy and orthopedics, and for resident review in orthopedics, the film provides a singularly clear exposition which merits repeated showings and "assigned viewings" as basic film literature. *D.S.R. with K.U.M.C. Panel, November, 1954.*

Audience: Medical students, internes, residents.

Production Data: Sponsor: The Veterans Administration, Washington, D. C.; **Scientific Adviser:** William Larmon, M.D., Department of Orthopedic Surgery, Northwestern University Medical School; **Producer:** Churchill-Wexler Film Productions, Inc., Hollywood, Calif.

Distribution: Central Office Film Library, Veterans Administration, Vermont and H St. N.W., Washington 25, D. C. **Loan:** Churchill-Wexler Film Productions, 801 N. Seward St., Los Angeles, Calif. **Rental:** \$7.50; **Sale:** \$172.25 (list).

Book Reviews

Expanding Horizons in Medical Social Work

Dora Goldstine. University of Chicago Press, Chicago, 1955. 274 pp. with index. \$5.

This is a companion volume to Miss Goldstine's earlier work, "Readings in the Theory and Practice of Medical Social Work," which concentrated on the primary responsibility of medical social work to assist patients and their families with social needs which affect the optimum use of medical care. Volume II presents 23 selected articles by physicians and respected authorities in medical social work on the expanding contribution of medical social service in health and medical programs and in interdisciplinary teaching and research. The author's own critique of the literature is of value.

The subject matter is divided into two sections. Section I presents articles on medical social service in hospitals and in public health and welfare programs, and on additional areas of responsibility in administration and community organization for health. Articles sketch emerging trends in the collaboration between medicine and social work in preventive medicine, treatment of chronic illness and the older person, home care programs and rehabilitation.

Section II deals with the participation of medical social workers in professional education. This includes participation in medical teaching and residency training. Due to the period of time covered in the selection of literature, some of the more recent methods of various schools of medicine in teaching the social and environmental aspects of medicine are not included. The author points out, however, that even as the articles were being assembled, the horizons of medicine and social work were expanding in interdisciplinary teaching.

The book is a sound interpretation of the way in which medicine and social work can maintain a partnership in clinical practice and clinical teaching. It notes that changing attitudes in medical practice have been reflected in the extended use of social service by medical services. It points toward the fur-

ther use of medical social services by medical schools and teaching hospitals, as that approach in medicine is stressed which recognizes the human aspects of illness, and as teaching is focused on disease of the person rather than disease of an organ.

Marian E. Russell, Vanderbilt

Clinical Bacteriology

E. Joann Stokes, M.D. The Williams & Wilkins Co., Baltimore, 1955. 288 pp. with index.

The reader of this book will be impressed with the broad experience and viewpoint of the author. This book should find its place on the desk of the clinical bacteriologist, the hospital resident or intern, the physician, the nurse, the hospital administrator and the teacher of medical microbiology.

The problems of clinical bacteriology are approached with the view that each case is an individual matter and that its solution depends on the need as determined by the bacteriologist and the physician. The methods to be used are described clearly and thoroughly, but, as is true of most British writing, without a waste of words. The need for the use of sound judgment in making interpretations of results is repeatedly emphasized as well as is the necessity for varying the set procedures in the interest of being of service to the patient and physician at the proper time.

The author states in the preface that "the approach to the investigation of infection is frankly academic," but the frankly academic nature of the book is well-tempered by emphasis on the use of sound judgment and by correctly placing the clinical bacteriologist and physician in the center of the investigators. It is pointed out that cooperation between bacteriologist and physician is essential to the accomplishment of the desired end. One chapter of the book requires special comment. Chapter 9, entitled "Hospital Epidemiology," is an innovation. The dangers of hospital-acquired infections are presented in a thought-provoking manner, and some, but not all, of the possible solutions to

the resulting problems are presented. This chapter should be widely read.

The book is not a technical manual. The reader must have some knowledge of bacteriology and medicine to fully appreciate it. It describes technique, but goes into relationships and the philosophy of sound approaches to the very broad and complex field involved.

There tends to be a considerable gap between the technical and interpretive phases of clinical bacteriology. This book goes far towards bridging this gap and should prove to be a very useful addition to the field.

James G. Shaffer, *Chicago Medical*

Primary Anatomy, 3rd edition

H. A. Cates and J. V. Basmajian, M.D. The Williams and Wilkins Co., Baltimore, 1955. 328 pp. with index. \$5.75.

This book is designed for use in teaching nursing students, physiotherapists or college courses in human anatomy, and is a complete revision of the previous edition. It admirably fills the gap between the very superficial textbooks of nursing anatomy and a book such as Grant's "A Method of Anatomy," which is just too long for any but the best students to handle in such a short course. Brevity is achieved without losing proper emphasis, readability or adequate illustration.

The 441 drawings are of a type familiar to all who are acquainted with Grant's text. The discussion is so written as to facilitate the student's memory of important points, not by the use of memory tricks, but by a logical or semi-deductive presentation of material, frequent correlation with function and development, and referral to living or surface anatomy.

Approximately half the book is devoted to the skeleto-muscular system. There is a useful series of photographs illustrating surface anatomy. The section on joints is especially well done. Unusual for a book at this level is the excellent discussion of the central nervous system, including the main afferent and efferent pathways. Although the viscera receive a relatively small allotment of space, there are particularly nice discussions of the anatomy of the heart, the mechanisms of respiration and swallowing, the anatomy and functions of the larynx and the development of the mesenteries. The eye and ear are interestingly presented.

In summary, this is a book which the

student should be able to handle by himself and which the teacher should have to supplement only in areas of his own particular interest or abilities. It is a book with which it should be fun to teach. The approach is systematic and it contains no dissection directions.

Wilbur D. Hagamen, *Cornell*

Clinical Endocrinology, 2nd edition

Laurence Martin, M.D. and Martin Haynes, M.D. Foreword by Sir Lionel Whitby, M.D. Little, Brown and Co., Boston, 1954. 253 pp. with index. \$5.50.

This book includes a complete description of the pertinent anatomy, physiology, biochemistry and pathology of the endocrine glands and their secretions, as well as a concise description of the various clinical conditions caused by alterations in hormonal balance. The relationship between the various glands is unusually well coordinated without being repetitive.

This edition is up-to-date and well documented with the most recent and significant information, supported by pertinent references, in a rapidly expanding field. The illustrations are appropriate and uniformly good.

The authors have presented so much material in a concise yet readable form that such a book might well serve as a pattern for some of our medical writers who seem to have little interest in conserving one of our important natural resources, pulpwood for paper.

Although prepared principally for practitioners of medicine, "Clinical Endocrinology" will also be most useful for medical students. Because the effects of hormones must be considered in every branch of medicine, this book can be used with profit by anyone in need of such information.

The various tests used in arriving at a diagnosis are described. Extensive attention is given to hormone therapy in all conditions. Dosages are given both for the British and American pharmacopoeia. The trade names used in both countries are also given. These latter features make this a most practical book that in my opinion, can be highly recommended.

D. Murray Angevine, *Wisconsin*

Neurology, 2nd Edition

S. A. Kinnier Wilson, M.D. and Ninian Bruce, M.D. The Williams and Wilkins Co., Baltimore, 1955. 3 volumes, 2060 pp. with index.

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TAYLOR INSTRUMENTS MEAN ACCURACY FIRST

massive treatise of Kinnier Wilson has been the master work of English clinical neurology, succeeding Growers' famous text.

Those who have read it will remember that the masterly character of this work lay in its superlative presentations of the natural history of neurologic diseases, particularly those of the degenerative disorders which were contained in the second volume.

The long catalogues of signs and symptoms, pathologies and guessed-at etiologies, of the choreas, dystrophies, atrophies and dystonias, which frequently lie so ponderous and dull upon the pages of neurology texts, in Wilson's book were made readable and lively by virtue of narrative ease. Frequently, amid the confident moments of lectures to undergraduate medical students on vascular disease of the brain, the reviewer has found this humbling remark from Wilson coming into mind: "Distinctions between hemorrhage and thrombosis often appear more impressive on paper than during anxious moments at the bedside."

This first edition was completed by Dr. Ninian Bruce from manuscript and notes left at Wilson's death. Dr. Bruce has also prepared the present edition. Again there is evident the tact and delicacy that he displayed in preserving the atmosphere of Kinnier Wilson's distinctive neurologic manner, and he has left unchanged the outstanding features of the original edition.

The advances which have been made since the first edition in electroencephalography and other laboratory procedures are faithfully introduced, although it is fair to say that one would have some difficulty in grasping the changes, for better or for worse, effected by their wider use in the routine clinical study of the patient suspected of a neurologic disorder.

Similarly, attention is given to progress in therapy of neurologic diseases. This attention cannot be considered adequate in every instance. Occasionally, it is not made sufficiently clear that some of the older forms of therapy, whose descriptions are retained, are outmoded. For example, in the section on therapy of migraine headaches, cachets of peptone, combined with calcined magnesia as well as thyroid extract, appear to be recommended as therapy for the megrims.

It should be pointed out also that the

newer knowledge of the physiology of the cerebral circulation, of thalamocortical interactions, of the reticular substance and of the role of the temporal lobe and its connections in psychomotor epilepsy, among others, receives either scant mention or none at all.

However, to criticize harshly this revision because of these weaknesses, is to miss the point of its uniqueness—the monumentally extensive and intensive clinical descriptions which are representative of a great clinician's approach to neurology.

A valuable addition is a new chapter by Sir Russell Brain on aphasia and related disorders. It is concise and conservative in its treatment of these problems, with a balanced presentation of the opinions of the "localizers," who believe speech function to be represented in definite areas of the brain, as well as of the views held by their antagonists, the "nonlocalizers." This chapter will be particularly valuable as a guide in these matters for the undergraduate medical student.

It is a pleasure to report that the index, which is the original addition was often frustrating, has now been expanded.

Perhaps it is not unreasonable to expect more careful editing in subsequent editions. For example, in the chapter on familial periodic paralysis, one encounters on page 1699 the statement that "blood chemistry is certainly not altered in any regular or unmistakable fashion." However, the observation that a decrease in concentration of serum potassium occurs during episodes of weakness is duly noted on page 1701.

The undergraduate medical student will no doubt find it useful chiefly when he wishes to enlarge his knowledge of a particular neurologic disorder.

The library of any institution having responsibility for teaching and patient care in the field of neurologic disease and allied disorders will find this set of much use.

William K. Jordan, Arkansas

Books and Pamphlets Received

(As space permits, those with the greatest interest to our readers will be reviewed)

The Mask of Sanity, 3rd edition

Hervey Cleckley, M.D. C. V. Mosby Company, St. Louis, 1955. 596 pp. with index. \$9.50.

General Endocrinology, 2nd edition

C. Donnell Turner, Ph.D. W. B. Saunders Co., Philadelphia, 1955. 552 pp. with index.

Diseases of the Ear, Nose and Throat

William Wallace Morrison, M.D. Appleton-Century-Crofts, Inc., New York, 1955. 756 pp. with index.

Pathology for the Surgeon, 7th edition

William Boyd, M. D. W. B. Saunders Co., Philadelphia, 1955. 737 pp. with index and 547 illustrations.

Clinical Endocrinology, 2nd edition

Laurence Martin, M. D. and **Martin Hynes**, M.D. Little, Brown and Company, Boston, 1954. 253 pp. with index.

Essentials of Orthopaedics, 2nd edition

Philip Wiles, M. D. Little, Brown and Company, Boston, 1955. 538 pp. with index.

Management of Disorders of the Autonomic Nervous System

Louis T. Palumbo, M.D. Year Book Publishers, Inc., Chicago, 1955. 186 pp. with index. \$5.

Principles of Medical Statistics

A. Bradford Hill, Ph.D. Oxford University Press, New York, 1955. 314 pp. with index. \$4.

Psychiatry for the Family Physician

G. Knight Aldrich, M.D. McGraw-Hill Book Company, Inc., New York, 1955. 276 pp. with index. \$5.75.

Survey of Clinical Pediatrics, 2nd edition

Lawrence B. Slobody, M.D. McGraw-Hill Book Company, New York, 1955. 502 pp. \$9.50.

Annual Review of Medicine, Vol. VI

David A. Ryland and **John Anderson**, with contributors. Annual Reviews, Inc., Stanford, California, 1955. 459 pp. with index.

The Clinical Interview, Vol. II: Therapy

Felix Deutsch, M.D. and **William F. Murphy**, M. D. International Universities Press, Inc., New York, 1955. 335 pp. with index. \$7.50.

A Textbook of Medicine, 9th edition

Edited by **Russell L. Cecil**, M.D. and **Robert F. Loeb**, M.D. W. B. Saunders Company, Philadelphia, 1955. 1786 pp. with index.

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• **DIRECTOR—MEDICAL EDUCATION:** 750 bed non-profit hospital with Protestant church affiliation desires services of physician with a background in the field of medical education with administrative ability to direct resident and intern program and to key continuing attending staff medical education. Excellent salary opportunity. Address: V-32.

• **VIROLOGIST:** Full-time faculty position in Eastern medical school department of bacteriology now occupying new laboratories for virus research, including facilities for tissue culture. Teaching of medical and graduate students. Time for research of own choosing. Rank and salary depend on experience and training. Address: V-33.

• **FELLOW IN FORENSIC PATHOLOGY:** Fully approved; complete facilities for training in pathology, toxicology and administrative legal medicine. Remuneration commensurate with training and experience. Reply: Department of Legal Medicine, Medical College of Virginia, Richmond, Va.

• **PHYSIOLOGY:** Assistant professor, Dalhousie University, Halifax, Nova Scotia. Salary \$4,800. Teaching load not heavy. Ample opportunity for original research. Apply to the dean, faculty of medicine.

• **PUBLIC HEALTH PHYSICIAN:** New York State Department of Health has opening for a public health physician who has specialized in diagnosis and treatment of tuberculosis, including the interpretation of chest X-ray films. Salary \$10,470, with five annual increments to \$12,510. Benefits. Qualifications include citizenship, possession of or eligibility for New York State medical license, and four years of specialized tuberculosis experience. Further information from Richard H. Mattox, Director, Office of Personnel Administration, New York State Department of Health, State Office Building, Albany 1, New York.


• **DENTAL SURGEON:** University of the Witwatersrand, Oral and Dental Hospital and Department of Dentistry, Johannesburg, S. Africa. Senior full-time dental surgeon, lecturer and clinical lecturer in dental prosthetics and dental mechanics. Salary and allowances £1,600 x £50 to £2,100 per annum plus £234 per annum temporary cost-of-living. Address: William D. Carter, Head, Exchange of Persons Service, UNESCO, 19 Avenue Kléber, Paris 16, France.

• **PHARMACOLOGY:** Assistant professor, Medical College of Georgia. M.D. or Ph.D. Teaching of medical students and excellent opportunity for independent research. Address: R. P. Ahlquist, professor of pharmacology, Medical College of Georgia, Augusta, Ga.

• **CLINICAL PSYCHOLOGIST:** Ph.D. male or female. Full-time faculty position. Psychodiagnosis and psychotherapy with children and adults in a psychiatric setting employing team approach. Interdisciplinary research. Teaching of medical and nursing students. Accredited hospital internship required. Prefer, in addition, experience in child guidance clinic. Salary \$6,000. Address: Dr. S. J. Fields, senior clinical psychologist, Department of Psychiatry, University of Arkansas Medical School, Little Rock, Ark.

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• **PHYSIOLOGIST:** Ph. D. Now assistant professor Midwest medical school. Broad training physiology and physics. Fellowships. Teaching experience in medical and dental physiology, graduate biophysics. Active research on circulation in perfused organs under own grant; and aid in group studies in environmental stress. Extended experience in aviation physiology and applied physics, including many designs. Desires position in East with active teaching assignments, independence of research, chance to develop biophysics program for medical and graduate curriculum. Address A-147.



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To aid in solution of the problem of faculty vacancies, MEDICAL EDUCATION will list persons and positions available, as a free service. The school department or person may have the option of being identified in these columns or of being assigned a key number for each position listed. Mail addressed to key numbers will be forwarded to the person or department listing the request.

Information for these columns should reach the Personnel Exchange, Journal of Medical Education, 185 N. Wabash Ave., Chicago 1, Ill., not later than the 10th of the month which precedes the month in which the listings will appear.

• **THORACIC SURGEON:** 37, university-trained and qualified in general and thoracic surgery. Prefer limitation to thoracic and cardiovascular surgery. Experience in cardio-pulmonary physiology. Desire teaching position. Presently on surgical staff of eastern university. Eligible for boards in general and thoracic surgery. Completed Part I Boards in general surgery. Available after August 1. Address: A-156.

• **INTERNIST-HEMATOLOGIST:** M.D. Presently full-time assistant professor of medicine at large midwestern university hospital. Qualified for American Board of Internal Medicine. Member of Alpha Omega Alpha, American Federation for Clinical Research, American Association for Advancement of Science. Experienced clinician, teacher and investigator. Director of radioisotope laboratory. Numerous scientific publications. Interested in changing location, particularly West Coast, in academic position or private practice with teaching and research opportunities. Address: A-157.

• **CHEMIST:** Ph.D., minor in biochemistry, male, 10 years of research in medicinal chemistry, large pharmaceutical house. Publications, patents. Desires position in chemical-biochemical research in medical field. Particularly interested in position which would broaden experience by contact with other medical sciences. With or without teaching. Address: A-158.

• **PHYSIOLOGIST:** Ph.D., male, 36, family. Desires research and/or academic position in eastern part of U.S. Three years experience as research biologist with large eastern pharmaceutical company. Also teaching experience. Address: A-159.

• **MICROBIOLOGIST:** Medical, male, Ph.D., 37, married. Experience includes public health laboratory, industry (antibiotic research), and teaching all phases of medical microbiology. Present position associate professor microbiology in medical college. Wide research background in antibiotics, immunology, tuberculosis, bacterial disassociation. Have some training in use of isotopes. Desires teaching appointment with research opportunities in a medical school located south. Address: A-160.

• **MICROBIOLOGIST:** Ph.D., 36, presently assistant professor in medical school. Desires position in medical school in teaching and/or

research with opportunity to complete work toward M.D. at least part time. Publications, associations, family, honorary societies. Ambition teaching and research in basic science. Address: A-161.

• **ENDOCRINOLOGIST—PHYSIOLOGIST—ANATOMIST:** with administrative experience desires position in graduate school of arts and sciences or medical school in teaching-research position. Harvard Ph.D.; seven years teaching-research experience, six years at Harvard. Extensive experience in endocrinology, general physiology, histology, medical genetics and zoological sciences. Interested in experimental medicine. Many publications. Membership in Sigma Xi, Kappa Delta Pi, Phi Sigma, N.Y.A.S., A.A.A.S., Amer. Soc. Zool., and others. Will accept administrative responsibilities. Address A-162.

• **PHARMACOLOGIST:** Ph.D., 26, married, two children. Director of research for established pharmaceutical company and medical student with part-time standing. Original publications, scientific societies, Soc. Experimental Biology and Medicine; American Federation for Clinical Research. Desires academic position with research possibilities while finishing medical school. Address: A-163.

• **BACTERIOLOGIST:** Male, 38, M.Sc., married. Seven years teaching and research experience in medical bacteriology. Desires part-time position with opportunity to work toward advanced degree. Present total college credit 260 semester hours. Present position an instructor in pathogenic bacteriology in medical school. Address: A-164.

• **PUBLIC HEALTH AND PREVENTIVE MEDICINE:** M.D. M.P.H. Fellow of the American Public Health Association, age 44, to be discharged from Army tour May 31, 1955. Desires to teach in a department of public health and preventive medicine, in a medical school. Six years experience in the practice of public health with some teaching experience, other experience in psychiatry and general practice. Address: A-165.

• **ANESTHESIOLOGIST:** 32, married, three children, veteran. Interested in heading a university anesthesia department. Five years experience in internal medicine before entering anesthesiology. Experienced in teaching and research. At the present time completing training at leading university hospital. Available December 1. Address: A-166.

• **VIROLOGIST—BACTERIOLOGIST:** Male, Ph.D., age 30. Teaching and research experience in medical bacteriology, general microbiology and virology. Tissue culture experience as applied to virology. Desires teaching position with opportunities for research. Address: A-167.

• **OBSTETRICIAN—GYNECOLOGIST:** Male, married, Board eligible. University teaching experience. Seeking change of location. Prefer full-time permanent academic position with opportunities for clinical investigation. Address: A-168.

• **PHYSIOLOGIST:** Ph.D., 39, broad biological training. Wide experience in teaching and research. Desires teaching position with opportunity for research. Experience in biometry. Research interest and experience in connective tissue permeability and biological effect of x-rays. Immediately available. Address: A-169.

• **PEDIATRICIAN:** Female, single. Candidate for M.P.H. Diplomate, American Board of Pediatrics. Interested in child health, teaching and research positions. Available July 1. Address: A-170.

• **INTERNIST—CLINICAL PATHOLOGIST:** Certified in both specialties, age 44, recently discharged from military service. Extensive research and teaching experience. Listed in coming editions of Am. Men of Science and Blue Book of Awards. Desires permanent ranking academic and/or research position. Will consider directorship of hospital laboratories. Address: A-171.

• **INTERNIST:** Age 31, M.Sc. (Med.), desires full-time (administrative or clinical teaching post in a medical school or hospital. Has teaching and research training. Available September 1955. Address: A-172.

• **SURGEON:** Age 32, veteran, married. University-trained. Diplomate American Board of Surgery. At present instructor in surgery large midwestern university hospital, desire full or part-time academic appointment for teaching and research as well as clinical. Address: A-173.

• **PHYSIOLOGIST—ENDOCRINOLOGIST:** Ph.D., married, veteran. Eight years teaching experience. Presently assistant professor at medical school. Wishes to relocate on the Pacific Coast or in Canada for health reasons. Member of many professional societies. Publications. Desires teaching position and research opportunities. Available summer 1955. Address: A-174.

• **OBSTETRICIAN—GYNECOLOGIST:** 45, married. Diplomate of American Board. Now assistant professor in large eastern university college of medicine and full-time director of service in an affiliated medical center. Extensive and varied clinical experience. Teaching experience at both undergraduate and postgraduate levels. Experience in administrative and executive capacities. Several clinical scientific publications. Desires full-time teaching position as department head in a university college of medicine with ample provisions and opportunity for both basic and clinical research. Address: A-175.

• **GERMAN PHYSICIAN AND SURGEON:** Educated Frankfurt/Main University, now in practice in Frankfurt/Main. Seeks academic position in United States, also information on residencies or internships. Address: A-176.

• **RESEARCH ASSOCIATE:** in fields of virology, bacteriology or immunology in a medical college. Ph.D. in bacteriology from State University of Iowa. Address: A-177.

• **PATHOLOGY—BACTERIOLOGY:** Desires teaching and research. Presently director of laboratories and medical examiner in U. S. Overseas Territory (Guam). Research work on tuberculosis and amyotrophic lateral sclerosis. Publications, societies. Ph.D. in microbiology. Teaching experience. Address: A-178.

• **ANESTHESIOLOGIST:** M.D., Ph.D., biochemistry and pharmacology, university trained and experienced. Available and interested in opportunity, preferably East coast, beginning July. Address: A-179.

• **MEDICAL WRITER:** Woman, B.S., B.J., University of Missouri, 1950. Major in special writing; five years newspaper experience; will have completed 16 credit hours in university school of medicine by August. Membership in Theta Sigma Phi and Kappa Tau Alpha, national honorary journalism fraternities. Available September 1. Address: A-180.

• **PHYSIOLOGIST:** Ph.D., 33. At present holds teaching and research position in medical school (6 years). Present rank assistant professor. Desires teaching position with research opportunities. Address: A-181.

• **MICROBIOLOGIST:** 34, Indian, B.Sc. (Microbiology) and B.Sc. (Chemistry) Bombay University. Experience in virus research and laboratory and serological work. Desires to study for Ph.D. in microbiology or bacteriology. Prepared to work on stipend or fellowship under any capacity. Address: A-182.

• **BIOCHEMIST:** Chemical pathologist, 38, Indian, B.Sc., M.Sc. Bombay with biochemistry, chemistry of food and drugs, first class B.Sc. (tech.) Research experience in enzymology, sterols. Taught chemical pathology, hospital biochemist for three years. Desires postgraduate studies in biochemistry or chemical pathology leading to Ph.D. Prepared to work on stipend or fellowship in any capacity. Address: A-183.

• **PSYCHIATRIST:** 31, male, M.D., B.A. (psychology), seeks part-time teaching position in Philadelphia area. Experience in teaching at graduate and undergraduate level. Dynamic orientation. Address: A-184.

• **PHYSIOLOGIST:** Ph.D., 28, married. Experience in research and teaching mammalian physiology. Research interest in neurophysiology and comparative physiology. Publications. References. Desires teaching-research position. Address: A-185.

• **SURGEON:** University trained, certified by general and thoracic boards, early 40's, family. Experienced in applied cardiopulmonary physiology as well as all phases of thoracic and cardiac surgery. Presently director of large teaching unit in East. Publications include basic investigation. Desires relocation, preferably full-time, with opportunity to develop own unit along three lines, service to patients, teaching and investigation. Address: A-186.

• **MEDICAL ILLUSTRATOR:** Male, single, 27, draft exempt, presently employed full-time in a university medical school and hospital. Desires changes and position with better future. Six years actual experience in scientific and technical illustration for lantern slides and publication. References and samples will be furnished. Address: A-187.

• **ANATOMIST—ENDOCRINOLOGIST:** Ph.D., 32, family, desires teaching-research post in medical school. Three years experience directing endocrine and pathology sections in pharmaceutical house. Good teacher with experience in the various phases of anatomy. Publications and societies. Will accept administrative responsibilities. Available September 1, 1955. Address: A-188.

• **MEDICAL WRITER:** 42, honor graduate of University of Illinois medical writing curriculum of the school of journalism. Publications, societies. Desires position as medical writer. Address: John W. Torrance Jr., 1731 E. 72nd St., Chicago 49, Ill.



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I. Cass, L. J. and Frederik, W. S.: Malt
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Modifier in Geriatric Constipation.
Journal-Lancet, 73:414 (Oct.) 1953.

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